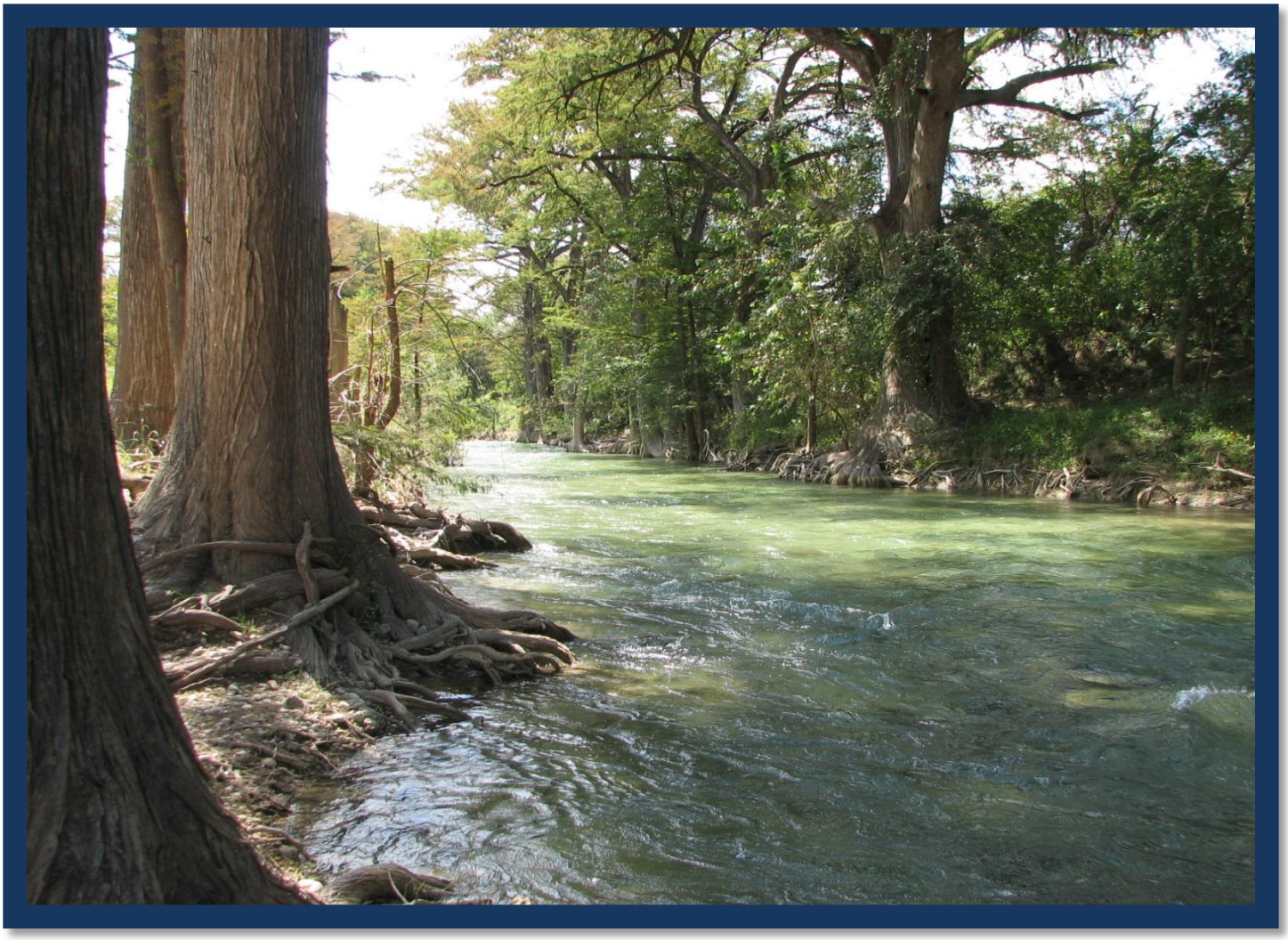

Texas Watershed Planning Training Project

Final Report 2013

Texas Water Resources Institute Technical Report No. 450

The Texas Watershed Planning Short Course is hosted and coordinated by the Texas Water Resources Institute, part of Texas A&M AgriLife Research, the Texas A&M AgriLife Extension Service, and the College of Agriculture and Life Sciences at Texas A&M University.

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Texas Watershed Planning Training Project Final Report 2013

By
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Texas Water Resources Institute

Prepared for Texas Commission on Environmental Quality
TCEQ Contract No. 682-11-12866

Texas Water Resources Institute Technical Report No. 450
Texas A&M University System
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Project Summary

Watershed planning remains a high priority to address the more than 568 impaired water body segments in Texas. To ensure that watershed protection efforts are adequately planned, coordinated and implemented, proper training of watershed coordinators and water professionals is necessary. The Texas Watershed Planning Short Course project, funded by the U.S. Environmental Protection Agency (EPA) through the Texas Commission on Environmental Quality (TCEQ), provides this training.

Through a coordinated effort led by the Texas Water Resources Institute, the institute partnered with the Texas A&M AgriLife Extension Service, Texas A&M AgriLife Research, Texas State Soil and Water Conservation Board (TSSWB), TCEQ, EPA, Texas State University-River Systems Institute and the Texas Institute for Applied Environmental Research (TIAER) to develop and conduct the watershed planning training project.

The project supports the Texas Nonpoint Source Management Program's goal of protecting and restoring water quality. It provides training to water professionals and supports the goal of data collection and assessment and implementation by providing individuals with knowledge and tools to conduct studies to determine sources of pollution and to develop and implement strategies to address pollution in impaired water bodies.

The Short Course, the main course of the project, provides guidance on stakeholder coordination, education and outreach; meeting EPA's nine key elements of a watershed protection plan; data collection and analysis; and tools available for plan development. Watershed professionals use these tools to work with stakeholders for successful watershed planning efforts. Three short courses with more than 61 attendees have been conducted during this grant period.

Along with the Short Courses, water professionals are invited to attend biannual Texas Watershed Coordinator Roundtables. More than 447 water professionals have attended the six Roundtables held across Texas during this grant period.

To assist watershed professionals in searching for funding programs, TWRI worked with the Environmental Finance Center at Boise State University to update the Directory of Watershed Resources to include Texas-specific funding programs. The Directory is an on-line database for watershed restoration funding. It includes information on federal, state, private and other sources of funding and assistance and allows Texas users to query information in a variety of ways, including by agency sponsor or keyword, or by a detailed search.

The institute has extended its efforts in watershed training programs by developing and conducting three additional courses: Watershed Modeling using Load Duration Curves (LDC) and the Spatially Explicit Load Enrichment Calculation Tool (SELECT); Introduction to Modeling Courses; and Fundamentals to Developing a Water Quality Monitoring Plan. The institute also coordinated and hosted Stakeholder Facilitation Workshops with Tetra Tech. Two of each course have been conducted, and more than 210 water professionals reached.

Besides the training courses, the project maintains the Texas Watershed Planning website and the Watershed Coordinators Listserv, with 410 subscribers receiving training updates and announcements. The listserv and the roundtables provide a forum for maintaining dialogue between watershed coordinators, facilitating interactive solutions to common watershed issues and adding to the fundamental knowledge conveyed at the Short Course.

The website had 5,465 visits from 3,626 unique visitors and 13,838 page views to date for Fiscal Years 2011-2013.

The first in the state and only course in the country on the required EPA nine elements, this project has educated more than 718 water professionals from July 2011-November 2013, ensuring watershed protection efforts are adequately implemented and improving water quality restoration efforts statewide.

Introduction and Project Description

According to the 2008 Texas Water Quality Inventory and 303(d) List, 386 water bodies in Texas are listed as impaired with 516 impairments. To address these impairments and improve water quality across the state, a coordinated watershed planning approach implemented by well-trained water resource professionals is needed to provide the framework for focusing public and private sector efforts. The proposed project will seek to ensure the proper training and encourage the coordination of watershed coordinators and water resource professionals by continuing the annual delivery of the Texas Watershed Planning Short Course and other relevant trainings, and coordination of the semi-annual Watershed Coordinator Roundtables. These activities have led to significant improvements in planning and implementation efforts in Texas and are needed to ensure that new watershed planning efforts continue to be adequately planned, coordinated, and implemented and the results properly assessed and reported.

Project Description

To help achieve this, TWRI has assembled and will continue to coordinate closely with a Project Team made up of university, TCEQ, TSSWCB, EPA, AgriLife Extension, TIAER, and River Systems Institute personnel. This Project Team guided the development of the Texas Watershed Planning Short Course (WPSC) under the previous project and continues to guide the delivery of the WPSC to water resource professionals throughout Texas. This Project Team meets, and will continue to meet, at least annually to review planned and ongoing project activities and provide recommendations and guidance.

This Project Team has been and will continue to be involved in the delivery of the weeklong WPSC. This course was developed to train watershed planners on how to develop each of the nine key elements of a watershed protection plan (WPP). Short courses will be offered annually as needed throughout the project. Participation to date in the WPSC has ranged from 40-45 people with 85% of participants being from Texas and 15% being from out of state. Our goal will be to educate 80-120 additional water resource professionals in Texas and the surrounding region about watershed planning. Experts from around the nation will continue to be brought in to discuss such topics as obtaining stakeholder involvement, developing each section of the WPP, identifying appropriate best management practices (BMPs), designing a monitoring program, and finding funding resources for implementing a WPP. Sessions on obtaining stakeholder involvement utilizing such guides as EPA's Getting in Step are also provided. Additionally, stakeholder involvement through such State programs as the Texas Watershed Steward Program and Texas Stream Team are also highlighted.

In addition to the Texas WPSC, ten (10) additional training opportunities will be provided on watershed modeling, stakeholder coordination, and other tools for watershed plan development and implementation. As possible, these will be held in conjunction with the Watershed Coordinator Roundtables described below. Trainings planned include two (2) two-day workshop titled Introduction to Modeling, two (2) two-day trainings on the Load Duration Curve (LDC) and SELECT models, two (2) trainings on stakeholder facilitation, and at least one training on water quality monitoring. Based on guidance provided by TCEQ and interest in these courses, the trainings offered will be adjusted to best meet the needs of the State and the watershed coordinators. TWRI will work closely with TCEQ and the Project Team to ensure that the most appropriate and needed trainings are offered.

TWRI also work with the Environmental Finance Center (EFC) at Boise State University to maintain the Texas Directory of Watershed Resources. This directory was developed by the EFC under the previous project and will

be kept up to date through this project. The EFC Network is an EPA-sponsored, university-based program providing financial outreach services. The Directory of Watershed Resources is an on-line, searchable database for watershed restoration funding. The database includes information on federal, state, private, and other funding sources and assistance. This will allow Texas users to query information in a variety of ways including agency sponsor, keyword, or by a detailed search.

Finally, TWRI will work with TCEQ, TSSWCB, and EPA to continue to facilitate Watershed Coordinator Roundtables throughout the project. In order to build upon the fundamental knowledge conveyed through the WPSC, there is an evident need to continue dialogue between watershed coordinators to facilitate interactive solutions to common issues being faced by watershed coordinators statewide. Approximately six (6) Roundtables will be held semi-annually throughout the state.

This collaborative project between EPA, TCEQ, TSSWCB, AgriLife Extension, TIAER, and TWRI will support development of WPPs and promote sustainable proactive approaches to managing water quality at the state level.

Task 1: Project Administration

Objective: To effectively administer, coordinate, and monitor all work performed under this project including technical and financial supervision and preparation of status reports.

Task 1.1 Project Oversight

TWRI will provide technical and fiscal oversight of the staff and/or subgrantee(s)/ subcontractor(s) to ensure Tasks and Deliverables are acceptable and completed as scheduled and within budget. With the TCEQ Project Lead authorization, TWRI may secure the services of subgrantee(s)/ subcontractor(s) as necessary for technical support, repairs, and training. Project oversight status will be provided to the TCEQ with the Quarterly Progress Reports (QPRs).

TWRI provided technical and fiscal oversight of the staff and subgrantees/subcontractors to ensure Tasks and Deliverables were completed and within the budget.

This collaborative effort began with an initial four-year project funded by EPA through TCEQ for just over $410,000, and continued with this grant for an additional three years at $330,238, both including 40% match provided by the grantee. Expenses incurred included development and delivery of seven Short Courses, nine Roundtables and 15 additional workshops and instructor reimbursement for travel for 31 courses with over 50 instructors over the project's duration. The Short Course registration fee was $350 and included course manual, Course CD with PowerPoints and other resources and additional instructional and reference materials. Approximately $2,450 was spent on seven Short Course scholarships for qualifying participants.

Subcontractors included Tarleton State University's TIAER, Texas A&M University's Spatial Sciences Lab/Ecosystem Science and Management and Biological and Agricultural Engineering Departments (BAEN) for trainings.

On July 6, 2011, the contract kickoff teleconference call was held to discuss roles and responsibilities, major tasks, contract terms and conditions, scope of work and schedule of deliverables revision on the shorter time frame of the project.

TWRI set up a subcontract with Tarleton State University's TIAER for its assistance in developing and delivering two Fundamentals of a Water Quality Monitoring Plan trainings and delivering the Texas Watershed Planning Short Course. The subcontract was developed and sent to TIAER on July 24, 2011 and accounts were set up on December 8, 2011 in the amount of $20,263.

TWRI set up a subaccount with AgriLife Extension in Soil and Crop Sciences to secure the assistance of Nikki Dictson with assistance on the planning team and delivering the trainings, roundtables, and short courses for the grant. The account was set up on September 14, 2011 in the amount of $16,486 for salaries, fringe, and travel.

TWRI set up a subaccount with AgriLife Research's BAEN for its assistance with developing and delivering the Load Duration Curve and Spatially Explicit Load Enrichment Tool Model Trainings. The subaccount was set up November 17, 2011 in the amount of $16,100.

TWRI set up subaccount with Texas A&M University Spatial Sciences Lab for its assistance with developing and delivering of the modeling training. The subaccount was set up November 17, 2011 in the amount of $11,500.

TWRI had communications between all of these contractors during the project on scheduling, course materials, conducting the course, QPRs, deliverables and budgets.

TWRI and TCEQ conducted Close-Out Strategy discussions by teleconference and through this process discussed extending the contract 2 months through November 30, 2013 to allow more time in between WPSC trainings and to conduct remaining courses. TWRI provided a letter for the 11-12866 Close-Out Strategy to TCEQ on November 12, 2012.

Task 1.2 Quarterly Progress Reports (QPRs)

Progress will be reported to the TCEQ by the 15th of the month following each state fiscal quarter for incorporation into the Grant Reporting and Tracking System (GRTS). The Reports are to include the following:

- *Status of deliverables for each task*
- *Narrative description in Progress Report format*

TWRI prepared and submitted Quarterly Progress Reports, which can be viewed online at http://watershedplanning.tamu.edu/projects/.

- Quarterly Progress Reports
  - Q10, 9/1/2013 - 11/30/2013 submitted on December 14, 2013
  - Q9, 6/1/2013 - 8/31/2013 submitted on September 15, 2013
  - Q8, 3/1/2013 - 5/31/2013 submitted on July 15, 2013
  - Q7, 12/1/2012 - 2/28/2013 submitted on March 15, 2013
  - Q6, 9/1/2012 - 11/31/2012 submitted on December 15, 2012
  - Q5, 6/1/2012 - 8/31/2012 submitted on September 14, 2012
  - Q4, 3/1/2012 - 5/31/2012 submitted on June 15, 2012
  - Q3, 12/1/2011 - 2/29/2012 submitted on March 15, 2012
  - Q2, 9/1/2011 - 11/30/2011 submitted on December 15, 2011
  - Q1, 6/1/2011 - 8/31/2011 submitted on September 15, 2011

Task 1.3 Reimbursement Forms

Reimbursement forms will be submitted to the TCEQ by the last day of the month following each state fiscal quarter. For the last reporting period of the project, Reimbursement Forms are required on a monthly basis.

The Texas Watershed Planning Short Course contract was initiated on June 30, 2011, and the budget was allocated and accounts were set up on July 27, 2011. The following table shows the invoices that have been sent to TCEQ to date.

Invoice	Date	Beginning Balance	
		198,143.00	
R020070	7/1-9/30/11	4231.75	193,911.25
M002485	10/1-11/30/12	11109.88	182,801.37
R020585	12/1-2/29/12	18127.84	164,673.53
R020951	3/1-5/31/12	9431.38	155,242.15
R021249	6/1-8/31/12	6201.21	149,040.94
R021533	9/1-11/30/12	34586.52	114,454.42
R021765	12/1-2/28/13	21205.1	93,249.32
R022033	3/1-5/31/13	2767.38	90,481.94
R022285	6/1-8/31/13	15634.64	74,847.30

Task 1.4 Contract Communication

The TWRI will participate in a post-award orientation meeting with TCEQ within 30 days of contract execution. The TWRI will maintain regular telephone and/or email communication with the TCEQ Project Manager regarding the status and progress of the project in regard to any matters that require attention between QPRs. This will include a call or meeting each January, April, July, and October. Minutes recording the important items discussed and decisions made during each call will be attached to each QPR. Matters that must be communicated to the TCEQ Project Manager in the interim between QPRs may include:

- *Requests for prior approval of activities or expenditures for which the contract requires advance approval or that are not specifically included in the scope of work*
- *Notification in advance when TWRI has scheduled public meetings or events, initiation of construction, or other major task activities under this contract*

Information regarding events or circumstances that may require changes to the budget, scope of work, or schedule of deliverables; these events or circumstances must be reported within 48 hours of discovery.

TWRI participated in a post-award contract orientation meeting via conference call on July 6, 2011 with the TCEQ Project Manager, TCEQ Contract Specialist, TWRI Business Coordinator, and Texas AgriLife Contracts and Grants staff. The following items were discussed:

- Contract terms and conditions
- Contract amendment and minor changes
- Scope of Work and Schedule of Deliverables

TWRI maintained communication with the TCEQ Project Manager throughout the project, including quarterly calls/meetings to discuss any important items, including the schedule of trainings, agendas, locations, advertising, and materials for each training.

A quarterly conference call was conducted on February 3, 2012 providing an update on project deliverables and minutes were emailed to the TCEQ Project Manager on February 7, 2012

A quarterly conference call was conducted on April 26, 2012 providing an update on project deliverables as well as discussing match for the project. Minutes were emailed to the TCEQ Project Manager on April 30, 2012.

A quarterly conference call was held on October 15, 2012 with Lauren Bilbe, Kevin Wagner, and Nikki Dictson to discuss the project timeline for spending funds and completing trainings in the final year, January roundtable agenda, next short course, and the end date of the contract.

TWRI worked with the TCEQ Project Manager to finalize agenda's for the January Roundtable and Introduction to Modeling training through email and teleconference calls.

TCEQ contacted TWRI about a Close-Out Strategy by email and phone. TWRI provided a letter for the 11-12866 Close-Out Strategy to TCEQ on November 12, 2012.

TWRI worked with the TCEQ Project Manager to determine dates and locations of the trainings in May, October, and November 2013. TWRI worked with the TCEQ project manager, EPA, and the planning team to update the short course agenda. It was sent to the planning team on July 16, 2013 for review and comment. It was finalized on and uploaded to the website on July 23, 2013.

TCEQ reviewed and approved all agendas, registration forms, and news releases for the trainings throughout the contract prior to their release and use in advertising.

Task 1.5 Annual Report Article

TWRI will provide an article for the Nonpoint Source (NPS) Annual Report upon request by TCEQ. This report is produced annually in accordance with Section 319(h) of the Clean Water Act (CWA), and it is used to report Texas' progress toward meeting the CWA 319 goals and objectives and toward implementing its strategies as defined in the Texas Nonpoint Source Management Program. The article will include a brief summary of the project and describe the activities of the past fiscal year.

The Texas Watershed Planning Training article for the NPS Annual Report – along with photos and captions were sent to TCEQ on August 10, 2011, July 19, 2012, and August 6, 2013. All three reports can be found at http://watershedplanning.tamu.edu/projects/.

Task 2: Maintain Web-Based Watershed Planning Resources for Texas Watershed Coordinators

Task 2.1 Watershed Training Webpage

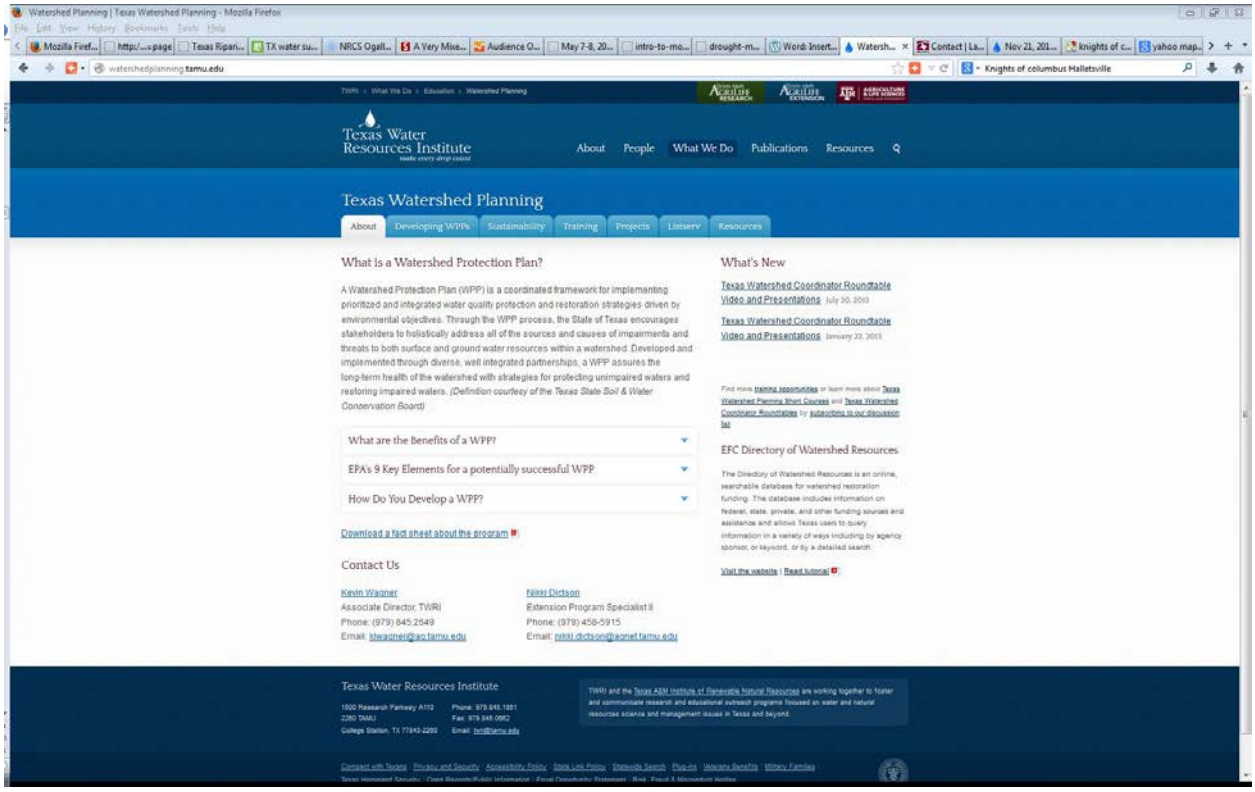
TWRI will host and maintain an Internet website for information sharing and use by watershed coordinators (http://watershedplanning.tamu.edu).

Participants are supported with a website, listserv, and professional development opportunities to equip them in all aspects of watershed planning.

The TWRI Program Coordinator met with TWRI Website Developer on July 25, 2011 to update the watershed training website to portray information for the new project. The "projects" tab was updated to include:

- Texas Watershed Planning Project II (and related materials)
- Texas Watershed Planning Project I (and related materials)

TWRI maintains, manages, and sends watershed related information as well as advertises trainings on the Watershed Coordinators Listserv, which has more than 410 subscribers.



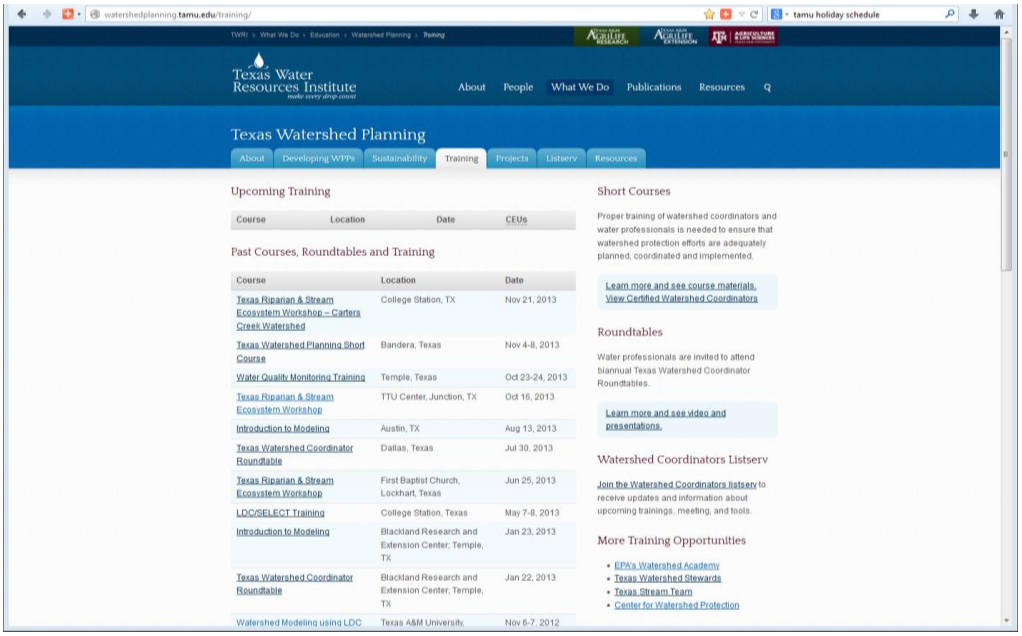
The Texas Watershed Planning Short Course links to the Extension Conference Services site with registration and agenda for both the 2011 and 2012 WPSC trainings. The 2013 Course was conducted by TWRI on the Texas Watershed Planning Website at (http://watershedplanning.tamu.edu/training/nov-4-8-watershed-planning-short-course/)

TWRI created webpages for each of the following trainings to advertise the trainings, including the agendas and registration forms:

a. Fundamentals of Developing a Water Quality Monitoring Plan training – http://nrt.tamu.edu/schedule/2013/oct-3-4-2013-water-quality-monitoring-plan/
b. Watershed Modeling using LDC and SELECT – http://select.tamu.edu/education/may-7-8-2013-watershed-modeling-using-ldc-and-select/
c. Texas Watershed Coordinators Roundtable – including presentations http://watershedplanning.tamu.edu/developing/roundtable/july-30-2013/

d. Introduction to Modeling training – http://nrt.tamu.edu/schedule/2013/aug-13-2013-introduction-to-modeling/
e. Updated contact information on website and registration forms after Courtney Smith left TWRI.
f. Stakeholder Facilitation Trainings were advertised on the website in 2011 and 2012.

The Watershed Training Webpage has been updated with all of the upcoming and past trainings and on the website.



Task 2.2 Maintain Directory of Watershed Resources

TWRI will coordinate with the EFC at Boise State University to maintain the Directory of Watershed Resources with data for Texas-specific funding programs. The Director of Watershed Resources is an on-line, searchable database for watershed restoration funding. The database includes information on federal, state, private, and other funding sources and assistance. This will allow Texas users to query information in a variety of ways including agency sponsor, keyword, or by a detailed search.

TWRI began working with the EFC to develop the Texas Directory of Watershed Resources. This tool was advertised at Watershed Coordinator Roundtables and at every Texas Watershed Planning Short Course by Bill Jarocki through 2012. These resources were linked from the Texas Watershed Planning Website Home page. Over 55 Texas Programs were included in the Directory. During 2012, TWRI worked with the EFC to update the directory. TWRI continued to send EFC any new information on funding opportunities throughout the contract. The Director Bill Jarocki and staff left the EFC in 2011. TWRI contacted EFC with additional updates in late 2012, we were told that the center was no longer going to update and maintain the directories across the country as there was not enough documentation or budget to continue it.

Task 2.3 Report on the Maintenance of Web-based Watershed Planning Resources for TX Watershed Coordinators

TWRI will submit a report detailing activities conducted under Task 2 during the current contract.

TWRI developed a report on the Maintenance and Tasks completed for the Web-based Watershed Planning Resources and submitted it to TCEQ.

Task 3: Conduct Watershed Planning Short Course

Task 3.1: Organize and Deliver 3 WPSC Events

TWRI will continue to coordinate and offer WPSC annually. To accomplish this, TWRI with assistance from the Project Team, will identify key speakers for the course, make arrangements for facilities, advertise the WPSC, conduct registration, and facilitate the delivery of three (3) Texas WPSCs to a total of 80-120 water resource professionals in Texas and the surrounding region. Certificates will be provided to participants upon completion of the course. A registration fee of $375 will be charged to WPSC participants. One WPSC Scholarship will be offered per year to assist those who lack funds to attend the WPSC. TWRI will work closely with TCEQ and the Project Team to assess the need for and timing of these short courses to best meets the needs of the state. As needed, travel for speakers will be paid for through project funds.

The Short Course is the only watershed planning course of its kind in the nation, and as such approximately 15% of attendees are from out of state. The week-long course combines 34 oral presentations by 16 state and national experts with discussions, case studies, and critical networking to provide a unique learning format. The agenda is routinely updated to deliver the latest information on new techniques. Watershed coordinators from ongoing Texas projects also provide examples of WPP development. Participants are supported with a website, listserv, and professional development opportunities to equip them in all aspects of watershed planning.

Since initiation of the course, watershed protection plans and the stakeholder driven watershed planning process instilled through the course have become the foundation for water quality improvement efforts in Texas. Practitioners developing both WPPs and TMDL Implementation Plans have participated in the course and are now using the techniques learned to address water quality issues statewide. Approximately 30 watershed planning efforts and almost a dozen more TMDL Implementation plans have benefited from the training. Of the more than 228 Short Course participants, a majority are currently involved in watershed planning efforts statewide and elsewhere across the U.S.

Ultimately, the program's success is measured by the improvement of water quality in the state. Such improvements have been or are already being observed in watersheds across Texas by those participating in the course (i.e. Buck Creek), and many more are expected. However, success is also measured in the knowledge gained by participants. Pre- and post- examinations given to Short Course participants have shown increases in knowledge ranging from 53–98% and averaging 76%, demonstrating the course's success. Participants leave the course extremely satisfied with their experience (95% satisfaction rating), ready to implement what they have learned.

Besides the three Short Courses, water professionals are provided professional development opportunities through other educational courses including: Stakeholder Facilitation, Load Duration Curves and SELECT, Introduction to Modeling and Fundamentals of Developing a Water Quality Monitoring Plan. Further, participants are provided a forum to discuss common watershed issues and solutions through Watershed Coordinator Roundtables. Presentations and resources from all events are posted online and have been accessed 5,465 times by over 3,626 unique visitors and 13,838 page views to the website since June 2011. Further exchange of information is facilitated through the listserv which has over 410 subscribers.

This project is truly collaborative, with a planning team from TWRI, TCEQ, TSSWCB, EPA, AgriLife Extension, AgriLife Research, TIAER, and The Meadows Center for Water and the Environment. The team guides the successful development and delivery of the Short Courses, trainings, and Roundtables. Course speakers include representatives of cities, counties, businesses (consultants), citizen groups, river authorities, Council of Governments, universities and local, state and federal agencies. Also, TWRI worked with Boise State University's EFC to update the Directory of Watershed Resources with data for Texas-specific funding programs.

On Wednesday, August 17, 2011, a conference call was held to discuss necessary changes to the Short Course agenda, which included the addition of new presentations. After the conference call, the agenda was finalized via email and posted on the short course registration website.

The Training Program Coordinator began contacting speakers in early September in regards to travel information; speaker biographies; and presentations and materials. All presentations were due to TWRI by October 14. On October 13, the Project Manager and Program Coordinator reviewed the pre- and post-exam and made minor changes. Course binders were prepared for each participant and EPA Handbooks as well as a cd of additional resources were included. Early registration ended October 17; late registration began October 18; and registration closed November 10. There were 24 participants in attendance at the November 14-18, 2011 Short Course at the Mayan Ranch in Bandera.

A planning team meeting was held April 20, 2012. Participants in the conference call to discuss the September 2012 Short Course agenda included:

EPA: Henry Brewer, Tina Hendon, Leslie Rauscher
TCEQ: Lauren Bilbe, Kerry Niemann
TSSWCB: Aaron Wendt
TIAER: Larry Hauck
TWRI: Kevin Wagner, Nikki Dictson, Courtney Smith

A few changes were made to the short course agenda and the agenda was emailed to the planning team for final review.

A planning team meeting was held on May 15, 2012 to discuss the "future of the short course" and concerns on registration numbers. Conference call participants included:

EPA: Henry Brewer, Tina Hendon, Leslie Rauscher, Mike Bira
TCEQ: Lauren Bilbe, Kerry Niemann
TSSWCB: Aaron Wendt, TJ Helton
TWRI: Kevin Wagner, Courtney Smith

This conference call included discussions on the following options that were presented:

- Discontinue the short course
- Keep the short course as-is (5-day at the Mayan Dude Ranch)
- Make the short course a mix of live presentations and videos and/or webinars; offer the short course in College Station
- Remove case study presentations from the current agenda; condense the agenda to a two-day course with some live presentations and some videos and/or webinars; keep the basics (nine elements and expectations for each).

The Training Program Coordinator contacted speakers in regards to travel information; speaker biographies; and presentations and materials. Course binders were prepared for each participant and EPA Handbooks as well as a cd of additional resources were included. The September 24-28, 2012 Texas Watershed Planning Short Course was conducted and had 17 attendees.

The third Texas Watershed Planning Short Course was conducted on November 4-8, 2013 at the Mayan Ranch in Bandera. The training was advertised at the July Watershed Coordinators Roundtable and on the watershed coordinators listserv as well as through multiple other listservs in Texas and nationally. A news release on the course through AgriLife Today was distributed to outlets across the state. TWRI worked with TCEQ to develop the agenda and list of speakers and topics. TWRI coordinated with instructors on the presentations and travel arrangements for the course. There were 20 attendees to the week-long course.

Three scholarships were provided to participants, one at each short course:

- In 2011 a scholarship for the short course was announced over the watershed coordinators listserv on October 6 and October 14. An October 31 deadline was given. Five inquiries were received and compiled by TWRI and discussed with TCEQ. Celina Gauthier with the Texas Coastal Watershed Program was selected to receive the short course scholarship during the 2011 course.
- Travis Tidwell with the Texas Stream Team was selected to receive the short course scholarship for 2012.
- A WPSC Scholarship was provided to Teresa Carrillo, associate director of the Coastal Bend Bays Foundation for the November 2013 Short Course.

Task 3.2: Administer Questionnaires and Evaluations

TWRI will oversee the administration of questionnaires and evaluations to gauge the knowledge gained and how effective the course was for each course participant. Questionnaires will be administered at the beginning and end of selected short courses to demonstrate the course's effectiveness and to identify areas needing adjustment. Evaluations will be completed at the end of each short course to receive comments and participant input and also determine watersheds represented and new WPPs initiated by participants at the short course.

During the current grant period starting in 2011-2013, three Short Courses, eight workshops and six Roundtables have been delivered. Over the years, the planning team has continually improved each course and the website, added new trainings and tailored roundtables based on emerging issues and participant feedback. Questionnaires and evaluations were administered and collected for the all of these courses. The results of each of these were submitted to TCEQ with the course deliverables.

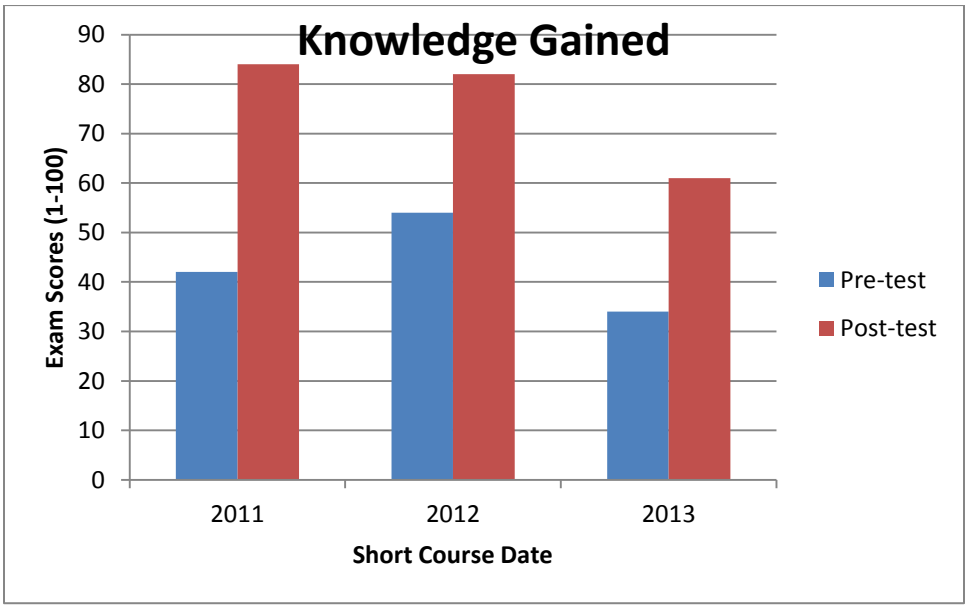
Success of these trainings is also measured in the knowledge gained by participants. Pre- and post- examinations given to Short Course participants have shown increases in knowledge ranging from 53–98% and averaging 76%, demonstrating the course's success. Participants leave the course extremely satisfied with their experience (95% satisfaction rating), ready to implement what they have learned. Feedback from these evaluations is reviewed and taken into consideration for the next training.

Questionnaires and evaluations were administered and collected for each of the three short courses. A pre- and post-course exam was developed to gauge knowledge gained by participants. Upon completion of the November 2011 course, 19 evaluations were submitted by participants providing input on the course. On a scale of 1-5 with 5 being the most satisfied, ratings for presentations ranged from 3.2-4.9. Overall the presentations averaged a 4.4 rating. The average on the pre-course exam was a 42 and the average on the post-course exam was an 84. This demonstrates a 98% increase in knowledge.

For the September 2012 course, 18 evaluations were submitted by participants providing input on the course that showed that they were very satisfied with the course. On a scale of 1-5 with 5 being the most satisfied, the overall course rated a 4.9 and the ratings for individual presentations ranged from 4.1-4.9. Overall the presentations averaged a 4.5 rating. The average on the pre-course exam was a 54 and the average on the post-course exam was an 82. This demonstrates a 53% increase in knowledge.

For the November 2013 course, 20 evaluations were submitted by participants providing input on the course that showed that they were very satisfied with the course. On a scale of 1-5 with 5 being the most satisfied, the overall course rated a 4.2 and the ratings for individual presentations ranged from 3.8-4.8. Overall the presentations averaged a 4.3 rating. The average on the pre-course exam was a 34 and the average on the post-course exam was a 61. This demonstrates a 77% increase in knowledge.

Since the program's inception in 2007, six Short Courses, 15 workshops and nine Roundtables have been delivered. Over the years, the planning team has continually improved each course and the website, added new trainings and tailored roundtables based on emerging issues and participant feedback from questionnaires and evaluations.



Course	*Increase in Knowledge (%)*
2011	*98%*
2012	*53%*
2013	*77%*

Task 3.3: Report on Watershed Planning Short Course Task

TWRI will provide a report detailing the WPSC held and associated activities conducted under Task 3.

a. TWRI submitted this report to TCEQ on December 20, 2013.

Task 4: Provide Professional Development Training

Task 4.1: Organize and Deliver "Introduction to Modeling" Training

A two-day course will be developed by TWRI and Texas A&M University System personnel in years 1-2 and delivered in subsequent years of the project to provide watershed coordinators with an introduction to watershed modeling. Development is year 1 and 2. Delivery is year 2 and 3. Topics of the course will include (1) purposes and limitations of different models, (2) timelines, (3) data needs (watershed characterization, water quality information), (4) cost estimates, (5) literature values vs. monitoring, (6) Quality Assurance Project Plans (QAPPs), (7) request for bids, (8) presenting models to stakeholders, and (9) contractor interaction with stakeholder groups. The course registration fee is to be determined.

The TWRI Project Manager and Program Coordinator met with Dr. R. Srinivasan on August 5, 2011 in regards to setting up a planning meeting for the Introduction to Modeling Training.

On October 31, 2011 a conference call was held to further discuss in detail course topics and outline; workshop materials; and a workshop timeline. Conference call attendees included:

- R. Srinivasan; Texas A&M University, Spatial Sciences Laboratory
- R. Karthikeyan; Texas A&M University
- Kevin Wagner, Courtney Smith; Texas Water Resources Institute
- Tina Hendon, Leslie Rauscher; EPA
- Lauren Bilbe, Bill Carter, Kyle Girten; TCEQ
- Aaron Wendt, TSSWCB
- Mike White, Tim Dybala; USDA-ARS
- Stephanie Johnson, Houston Engineering

The Training Program Coordinator compiled the notes from the conference call to create a draft agenda and emailed it out to the planning team. Through this review process, additional edits were made to the agenda this quarter and all speakers were contacted and confirmed to finalize the agenda.

Materials were placed on the website about the training and the registration was opened for the first training on January 23, 2013. The registration form was updated and the registration fee was determined to be $75 for the

one-day training. The first training was conducted with 18 participants at the AgriLife Blackland Research and Extension Center in Temple, Texas.

For the second Introduction to Modeling training, the original date had to be pushed back to August 2013 as the main instructor Dr. Srini would be out of the country. A draft news release was developed sent to the TCEQ Project Manager prior to being released. The training was advertised through the news release and the watershed coordinators listserve. The speakers were contacted and confirmed to finalize the agenda based on evaluation results from the first training. The training was advertised through the watershed coordinators listserv and a news release on July 29, 2013. Registration was conducted and the course was held for a second time on August 13, 2013 at TCEQ Headquarters in Austin, TX. A total of 28 participants and instructors were at the August 2013 Training. Workshop deliverable materials were provided to the TCEQ Project Manager electronically.

Task 4.2: Organize and Deliver Training on Watershed Modeling using LDC and SELECT

LDCs provide a graphical representation of stream flow and pollutant loading whereby real data can be compared to a stream's maximum allowable load to indicate reductions needed and help identify the type of pollutant load (i.e. point source vs. NPS). SELECT provides a spatially explicit analysis of land use/land cover, animals/humans in watersheds, and other parameters to assess/determine potential sources of bacteria. The models are being used for Total Maximum Daily Load (TMDL) and WPP development. A two-day course will be developed and delivered in subsequent years of the project. A $100 registration fee will be charged for these two-day courses.

A preliminary planning meeting was on November 21, 2011 with R. Karthikeyan, Kevin Wagner, and Courtney Smith. The first draft of the training manual was developed and emailed to Dr. Karthi and Kyna McKee his former graduate student and co-instructor for review and additions. The website providing more information on these tools and this training has been developed; edited and finalized: http://select.tamu.edu/. The "Education" section of the new website includes information on the training; short instructor bios; the training agenda and registration form (http://select.tamu.edu/education/).

TWRI coordinated the program and advertised for this training. Presentations and the manual were finalized and printed. The computer lab was reserved and contracted for this training in November 2012 at the Horticulture and Forest Science Building computer lab. Computer software and files were provided to the computer IT folks to be placed on the classroom computers for the training. The computers were tested the day before the workshop. TWRI and BAEN conducted the first training on November 6-7, 2012 with 18 attendees at the workshop.

TWRI updated the website with information for the second training including updating the presentations and the manual. The computer lab was again reserved and contracted for this May 2013 training in at the same computer lab. Registration was opened for this training on the website. The training was conducted by TWRI and BAEN and had 18 attendees at the second training in May 7-8, 2013. Evaluations were compiled for this training and submitted to TCEQ with deliverables.

Task 4.3: Organize and Deliver Training on Stakeholder Facilitation

Stakeholder facilitation continues to be identified by watershed coordinators as a training need in Texas. To provide this, TWRI will deliver 2 day-long trainings on stakeholder facilitation. A $30 registration fee will be charged for the stakeholder facilitation programs.

The TWRI Project Manager worked with Charlie MacPherson to set up the first Stakeholder Facilitation Training in conjunction with the July 2011 Texas Watershed Coordinator Roundtable. The TWRI Program Coordinator worked with Charlie MacPherson to compile and print course materials. The TWRI Project Manager updated materials on the website, advertised the trainings, and conducted registration for both trainings.

The first training was held on July 26, 2011 at the Lower Colorado River Authority in Austin with 42 participants. It was also held in conjunction with the January 2011 Texas Watershed Coordinator Roundtable.
The TWRI Program Coordinator emailed evaluation summary results and related training materials (per the Schedule of Deliverables) to the TCEQ Project Manager on August 10, 2011.

The second Stakeholder Facilitation Training – held in conjunction with the Roundtable – was on January 24, 2012 at the Texas Farm Bureau Conference & Training Center in Waco. There were 28 participants in attendance for the training. The TWRI Program Coordinator emailed evaluation summary results and related training materials (per the Schedule of Deliverables) to the TCEQ Project Manager on February 7, 2012.

Task 4.4: Organize and Deliver Training on Water Quality Monitoring

Training will be developed by TWRI and others and will cover monitoring for (1) watershed characterization and (2) evaluation of water quality improvements and BMP effectiveness from implementation activities. Topics of the training will include: data quality objectives; identifying available data; determining data gaps and needs; monitoring plan development to meet data quality objectives and support modeling; selecting monitoring types, locations, equipment and laboratory analysis; obtaining stakeholder input; developing QAPPs for monitoring and acquiring data; and a workshop portion for collaboratively creating monitoring plans. The course(s) will be developed in years 1-2, and a minimum of one course per year will be delivered in subsequent years.

The TWRI Project Manager and Program Coordinator met (via conference call) with Dr. Larry Hauck (TIAER) to discuss date and participants for the first planning team meeting/conference call to discuss the training and development.

The first planning team meeting/conference call was held on September 7, 2011 to discuss the training purpose; course topics/outline; and workshop materials. A draft agenda was emailed to Larry Hauck and Kevin Wagner on September 26 for review. The agenda was updated and registration materials were updated, prepared, and placed on the website for advertising and registration. The workshop venue and date were set for the training, Fundamentals of Developing a Water Quality Monitoring Plan, for October 3-4, 2012 at the LCRA Redbud Center in Austin. Course materials were compiled and the workshop manual was developed and printed for the course. The Fundamentals of Developing a Water Quality Monitoring Plan workshop was conducted in Austin and 25 registered and five presented. Training evaluations were created and conducted at the Training deliverables were submitted electronically to the TCEQ Project Manager.

The date was set and advertised for the second training October 23-24, 2013 in Temple at the ARS Facility. Instructors were once again contacted to determine the best date and their availability. As it got closer, the instructors were contacted again and several were unable to attend so TWRI worked with TCEQ to finalize the agenda and identify new speakers to cover those topics for this training. Once the agenda was finalized, the materials were placed on the website. Registration was opened and it was advertised on the Watershed

Coordinators Listserv, the website and through a news release. Course materials were compiled, and the workshop manual was updated and printed for the course. The evaluations were updated and conducted at the training. Training deliverables were submitted electronically to the TCEQ Project Manager.

Task 4.5: Administer Questionnaires and Evaluations

TWRI will oversee the administration of questionnaires and evaluations to gauge the knowledge gained and how effective the course was for each course participant. Questionnaires will be administered at the beginning and end of each course to demonstrate the course's effectiveness and to identify areas needing adjustment.

Training evaluations were developed and conducted for the Introduction to Modeling I and II held on January 23, 2013 and August 13, 2013. Evaluation results were submitted to TCEQ with training deliverables. The summary of the evaluations includes: the overall course rating, rating for the how helpful the course information was, and the % that rated the course and information as Good and Excellent. The evaluations also asked what were the most valuable aspects and least valuable aspects of the training. Each presentation at the training was evaluated on a 1-4 scale of Poor, Average, Good or Excellent. The questionnaires were also used to gather information on the participants including: affiliation, why the training was important and what did they hope to gain, what were their greatest challenges, what tools or methods were they currently using, and what were their greatest needs in that area for feedback on future trainings.

Introduction to Modeling Courses	**January 2013**		**August 2013**	
Presentations	Rating (1-4)	% Good Excellent	Rating (1-4)	% Good Excellent
Overall Course (Scale of 1-5)	**4.1**	**85**	**4.1**	**95**
Introductions & Workshop Overview [Wagner/Dictson, TWRI]	**3.2**	**85**	**3.2**	**94**
Models Overview [S. Srinivasan, SSL]	**3.4**	**92**	**3.5**	**100**
Hiring a Contractor [Kevin Wagner, TWRI]	**3**	**77**	**--**	**--**
Modeling Factors [S. Srinivasan, SSL]	**3.3**	**85**	**3.3**	**94**
Literature Values vs. Monitoring [L. Hauck, TIAER]	**3**	**69**	**3.5**	**100**
QA Project Plans [Kyle Girten, TCEQ/Kevin Wagner, TWRI]	**3.1**	**75**	**3.2**	**88**
Stakeholder Communications [Nikki Dictson, TWRI]	**3.4**	**83**	**3.6**	**100**
Wrap Up [Kevin Wagner, TWRI]	**3**	**78**	**--**	**--**

TWRI Program Coordinator developed evaluations for the Water Quality Monitoring and LDC/SELECT trainings. Training evaluations and questionnaires were administered and compiled for LDC/SELECT Training held in November 2012 and May 2013. Evaluation results were submitted to TCEQ with training deliverables. The summary of the evaluations includes: the overall course rating, rating for the how helpful the course information was, and the % that rated the course and information as Good and Excellent. The evaluations also asked what were the most valuable aspects and least valuable aspects of the training. Each presentation at the training was evaluated on a 1-4 scale of Poor, Average, Good or Excellent. The questionnaires were also used to gather information on the participants including: affiliation, why the training was important and what did they hope to gain, what were their greatest challenges, what tools or methods were they currently using, and what were their greatest needs in that area for feedback on future trainings.

Load Duration Curve and SELECT Trainings	2012		2013	
Presentations	**Rating (1-4)**	**% Good Excellent**	**Rating (1-4)**	**% Good Excellent**
Overall Course (scale of 1-5)	**4.2**	**88**	**4.3**	**85**
Introductions & Workshop Overview [Kevin Wagner, TWRI]	3.2	94	3.7	100
Introduction to Load Duration Curves [R. Karthikeyan & K. Borel, AgriLife Research]	3.5	100	3.8	92
LDC Demonstration [R. Karthikeyan & K. Borel, AgriLife Research]	3.4	100	3.7	92
Assignment: Estimating Pollutant Loads for Attoyac Bayou Using LDCs [Group]	3.4	100	3.7	92
Introduction to BASINS and SELECT [R. Karthikeyan & K. Borel, AgriLife Research]	3.3	87	3.7	92
Gathering animal density data for SELECT [Kevin Wagner, TWRI]	3.4	87	3.6	92
SELECT Demonstration [R. Karthikeyan & K. Borel, AgriLife Research]	2.9	58	3.5	100
Assignment: Estimating Pollutant Sources for Little Brazos River Using SELECT [Group]	3	71	3.5	91
Wrap Up [Kevin Wagner/Nikki Dictson, TWRI]	3.7	90	3.7	100

TWRI administered questionnaires and evaluations to Stakeholder Facilitation Training participants on July 26, 2011 and Jan. 24, 2012. TWRI Program Coordinator emailed detailed results to TCEQ Project Manager on August 10, 2011 and February 7, 2012 respectively. Evaluation results were submitted to TCEQ with training deliverables. The summary of the evaluations includes: the overall course rating, rating for the how helpful the course information was, and the % that rated the course and information as Good and Excellent. The evaluations also asked what were the most valuable aspects and least valuable aspects of the training. Each presentation at the training was evaluated on a 1-4 scale of Poor, Average, Good or Excellent. The questionnaires were also used to gather information on the participants including: affiliation, why the training was important and what did they hope to gain, what were their greatest challenges, what tools or methods were they currently using, and what were their greatest needs in that area for feedback on future trainings.

Stakeholder Facilitation Trainings	2011		2012	
Presentations	Rating (1-4)	% Good Excellent	Rating (1-4)	% Good Excellent
Overall Course (Scale of 1-5)	**4.2**	**94**	**4.3**	**84**
Setting up for Success	**3.4**	**95**	**3.5**	**93**
Using Outreach to Bring Stakeholders to the Table	**3.5**	**100**	**3.6**	**100**
Facilitation 101	**3.3**	**90**	**3.8**	**100**
Keeping the Ball Rolling	**3.6**	**100**	**3.7**	**100**

Training evaluations and questionnaires were administered and compiled for the Fundamentals of Water Quality Monitoring Training on October 3-4, 2013 and October 23-24, 2013.

Evaluation results were submitted to TCEQ with training deliverables. The summary of the evaluations includes: the overall course rating, rating for the how helpful the course information was, and the % that rated the course and information as Good and Excellent. The evaluations also asked what were the most valuable aspects and least valuable aspects of the training. Each presentation at the training was evaluated on a 1-4 scale of Poor, Average, Good or Excellent. The questionnaires were also used to gather information on the participants including: affiliation, why the training was important and what did they hope to gain, what were their greatest challenges, what tools or methods were they currently using, and what were their greatest needs in that area for feedback on future trainings.

Water Quality Monitoring Trainings	**2012**		**2013**	
Presentations	**Rating (1-4)**	**% Good Excellent**	**Rating (1-4)2**	**% Good Excellent2**
Overall Course (Scale of 1-5)	**4.3**	**95**	**4.3**	**95**
Data Quality Objectives and Project Planning (Carter 2012/Hendon 2013)	**2.8**	**68**	**3**	**80**
Inventorying and Acquiring Existing Resources (Wise)	**3.5**	**100**	**2.9**	**0.7**
Watershed Characterization and Sufficient Data (McFarland)	**3.5**	**95**	**3.1**	**73**
Selecting Monitoring Design (Hauck)	**3.2**	**81**	**3.3**	**90**
Introduction to Stormwater Sampling (Harmel)	**3.6**	**95**	**3.5**	**100**
Other Considerations & Review Building a Successful Monitoring Plan (Hauck)	**3.2**	**90**	**3.1**	**80**
Quality Assurance Project Plans (Girten 2012/Wagner 2013)	**3.5**	**95**	**3**	**73**
Monitoring Demonstrations (Group)	**3.6**	**95**	**3.5**	**91**
Statistical Tools for Analysis (McFarland)	**3.2**	**90**	**3**	**73**
Uncertainty in Monitoring (Harmel)	**3.5**	**90**	**3.4**	**82**
Stakeholder Communications (Hauck)	**3**	**88**	**3.5**	**100**

Task 4.6: Report on Professional Development Trainings Provided

TWRI will submit a report detailing professional development trainings provided and associated activities conducted under Task 4.

TWRI developed and submitted a report on the Professional Development Trainings provided. The summary of the deliverables and attendees is also included below:

- Conducted six Texas Watershed Coordinator Roundtables with more than 447 attendees
- 3 new courses were developed: Introduction to Modeling; Watershed Modeling using Load Duration Curves (LDC) and the Spatially Explicit Load Enrichment Calculation Tool (SELECT); and Fundamentals of Developing a Water Quality Monitoring Plan

- TWRI coordinated and hosted two Stakeholder Facilitator Trainings with Tetra Tech in July 2011 and January 2012
- Conducted two Introduction to Modeling courses with over 46 attendees
- Conducted two Load Duration Curve and SELECT trainings with over 44 attendees
- Conducted two Fundamentals of Developing a Water Quality Monitoring Plan trainings with over 52 attendees
- Throughout the Watershed Trainings Project from July 2011- November 2013, more than 636 water professionals were educated.

Task 5: Organize and Facilitate Texas Watershed Coordinator Roundtables

Task 5.1: Facilitate Watershed Coordinator Roundtables

TWRI will coordinate with TCEQ, TSSWCB and EPA to organize and facilitate a total of six (6) semi-annual Watershed Coordinator Roundtables. These face-to-face Roundtables will build upon the fundamental knowledge conveyed through the WPSC and establish a continuing dialogue between watershed coordinators in order to facilitate interactive solutions to common issues being faced by watershed coordinators statewide. Periodically, TWRI, in conjunction with TCEQ and the Project Team will review the continued need for semi-annual Roundtables as well as their specific timing.

In February 2011, the TWRI Project Manager corresponded with TCEQ, EPA, and TSSWCB via email and phone to discuss potential speakers and dates for the July 2011 Texas Watershed Coordinator Roundtable. It was decided, based on January 2011 evaluation results, the Roundtable would be on July 27, 2011 at the Lower Colorado River Authority in Austin and focus on Bacteria Dynamics, Assessment Methods, and BMPs. The roundtable had 107 participants in attendance. The participant list, summary notes, as well as videos of each presentation and presentations can be found online at: http://watershedplanning.tamu.edu/developing/roundtable/july-27-2011.

The January 2012 Roundtable agenda items were discussed with the planning team via email on August 18, 2011. The date was set for January 25, 2012 at the Texas Farm Bureau Conference & Training Center in Waco. The online RSVP system and more information were posted on the watershed training webpage on November 2, 2011. The TWRI program coordinators contacted all of the speakers confirmed their availability. The Roundtable was held January 25, 2012 in Waco with 67 participants in attendance. Evaluation results were captured through Dr. Jackie Smith's presentation utilizing the TurningPoint® software. Results were emailed to the TCEQ Project Manager on February 7, 2012.

Based on evaluation results from the January 25, 2012 Roundtable – the July Roundtable was scheduled for July 26, 2012 in College Station. The agenda was finalized, speakers confirmed; and information was posted on the watershed planning website (http://naturalresourcestraining.tamu.edu/schedule/july-26-2012-texas-watershed-coordinator-roundtable/). The Roundtable was held on July 26, 2012 with 64 participants in attendance. Presentations, videos and a participant list can be found on the Watershed Planning website: http://watershedplanning.tamu.edu/developing/roundtable/july-26-2012/

The January 2013 Roundtable was held in conjunction with an Introduction to Modeling training (both in Temple at the Texas AgriLife Blackland Research and Extension Center. All of the speakers were contacted and confirmed. The agenda was finalized and updated on the website. The RSVP system was opened and advertised to the watershed planning listserv and through a news release for both the roundtable and workshop. The Roundtable was held on January 22, 2013 with 59 participants in attendance. Presentations, videos and a participant list can be found on the Watershed Planning website: http://watershedplanning.tamu.edu/developing/roundtable/january-22-2013/

The July 2013 Roundtable was originally planned to be held at the LCRA Redbud Facility in Austin. The theme of this roundtable was Urban BMPs and Low Impact Development and Dr. Jaber was one of the main speakers. He offered to host it in Dallas at the AgriLife Urban Solutions Center where the group could actually tour the Low Impact Design practices that are installed and being demonstrated onsite at the facility. All of the speakers were contacted and confirmed, the agenda was finalized and materials were updated on the website. The roundtable was conducted and the presentations, agenda, and participant list of 68 can be found on the website: http://watershedplanning.tamu.edu/developing/roundtable/july-30-2013/ . Materials were provided to the TCEQ Project Manager electronically.

The agenda was finalized and updated on the website. It was advertised through the listserv, website, and a news release. TWRI coordinated preparations, RSVPs and conducting the July 30, 2013 Roundtable in Dallas, TX. A Roundtable was held on July 30, 2013 with 68 participants in attendance. An evaluation was conducted and materials for the course were provided to TCEQ. Presentations, videos and a participant list can be found on the Watershed Planning website: http://watershedplanning.tamu.edu/developing/roundtable/july-30-2013/

Task 5.2: Administer Evaluations

TWRI will oversee the administration of evaluations to gauge the knowledge gained and how effective the Roundtable was for each participant. Evaluations will be administered at the end of each Roundtable to determine future topics of discussion.

Training evaluations were developed and conducted for the Texas Watershed Coordinator roundtables conducted on January 25, 2011, July 27, 2011, January 25, 2012 and July 26, 2012, January 22, 2013 and July 30, 2013.

Participant evaluations results were compiled and emailed to TSSWCB, TCEQ, and EPA. During the January 2012 Roundtable evaluation results were captured through Dr. Jackie Smith's presentation utilizing the TurningPoint® software. The question about how helpful the information covered at the roundtable was not asked when the evaluation was conducted through the clicker systems. Evaluations were conducted and have been summarized including: the overall course rating, rating for the how helpful the course information was, and the % that rated the course and information as Good and Excellent.

Roundtables	Course Rating	Course Good/Excellent	Info Help	Information that will Help Good/Excellent
Jan-11	3.3	98%	3.1	90%
Jul-11	3.4	96%	3.3	90%
Jan-12	3.35	93%	--	--
Jul-12	3.25	88%	3.1	88%
Jan-13	3.3	95%	3.3	87%
Jul-13	3.3	96%	3.3	96%
Avg	**3.3**	**94.3%**	**3.2**	**90.2%**

The evaluations were also used to gather information on what topics were most valuable, what other topics that needed to be addressed or were of interest for watershed coordinators, and feedback to schedule the date and location of future roundtables. The January 2012 Roundtable evaluation also showed that 77% of the watershed coordinators thought the Watershed Coordinators Listserv was beneficial and helpful. These roundtables with a mix of presentations on issues and discussions have been a very valuable to watershed coordinators across the state.

Task 5.3: Report on the Texas Watershed Coordinator Roundtables

TWRI will submit a report detailing Texas Watershed Coordinator Roundtable meetings provided and associated activities conducted under Task 5.

b. TWRI submitted this report to TCEQ on December 20, 2013.

OBJECTIVE 6: SUBMIT FINAL REPORT

Task 6.1: Draft Report

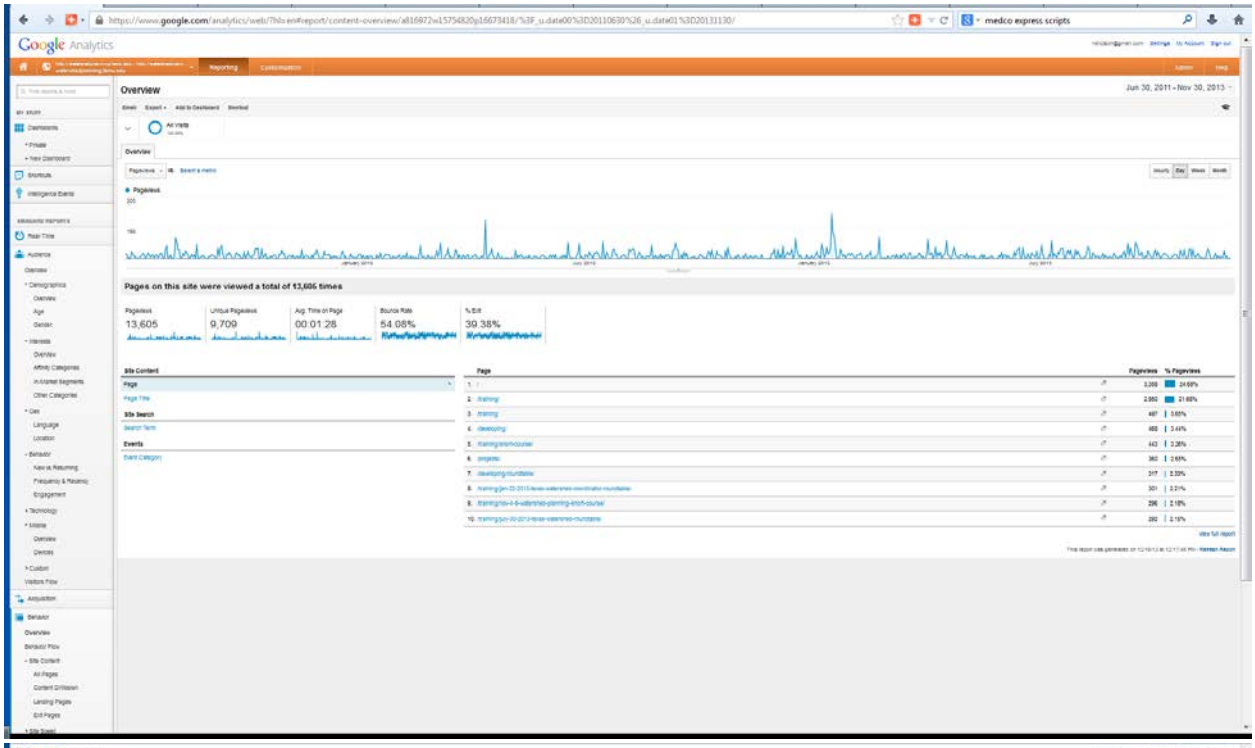
TWRI has developed the draft report and submitted it to TCEQ for review on December 20, 2013.

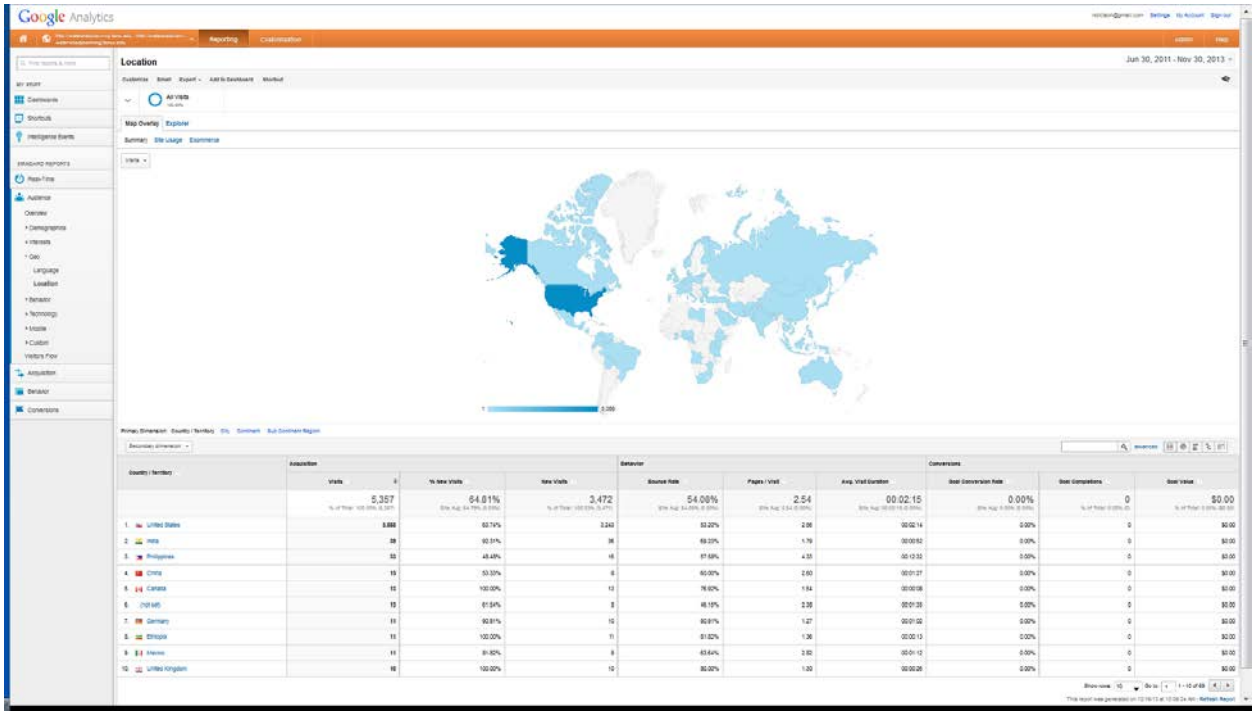
Task 6.2: Final Report

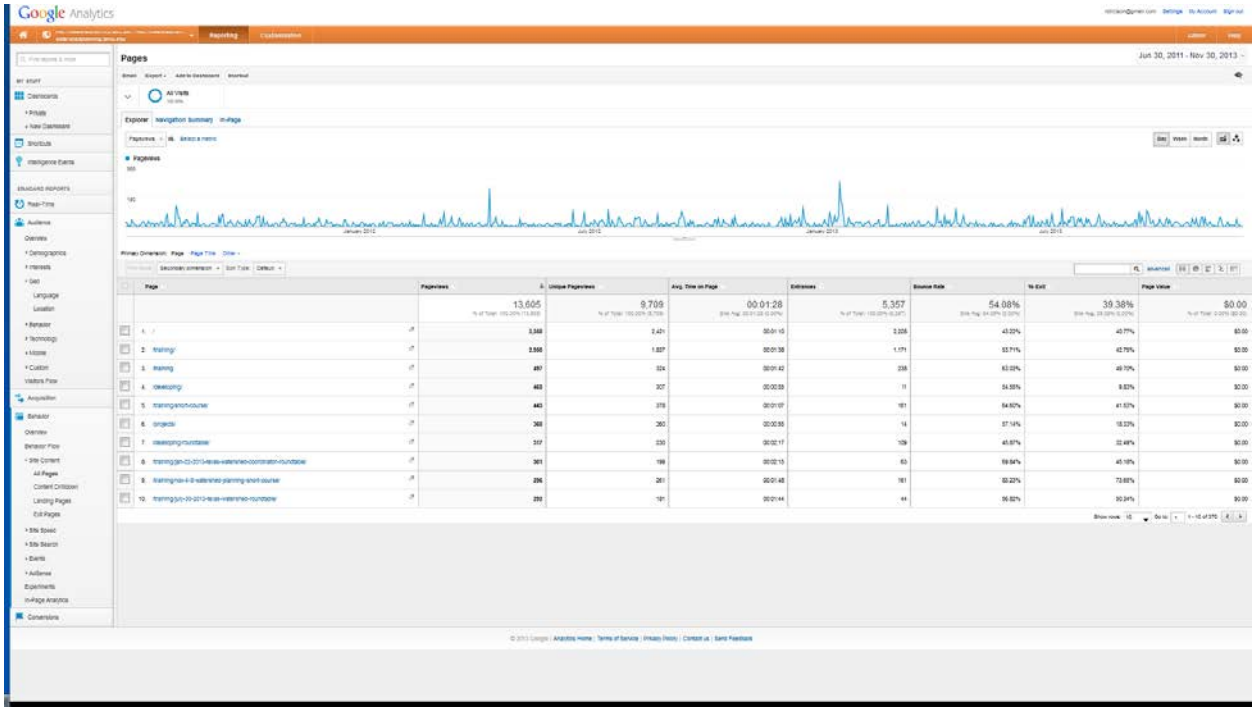
TWRI will incorporate all edits from TCEQ into the final report and resubmit it during the next quarter.

Appendices

Appendix A: Watershed Training Webpage and Google Analytics



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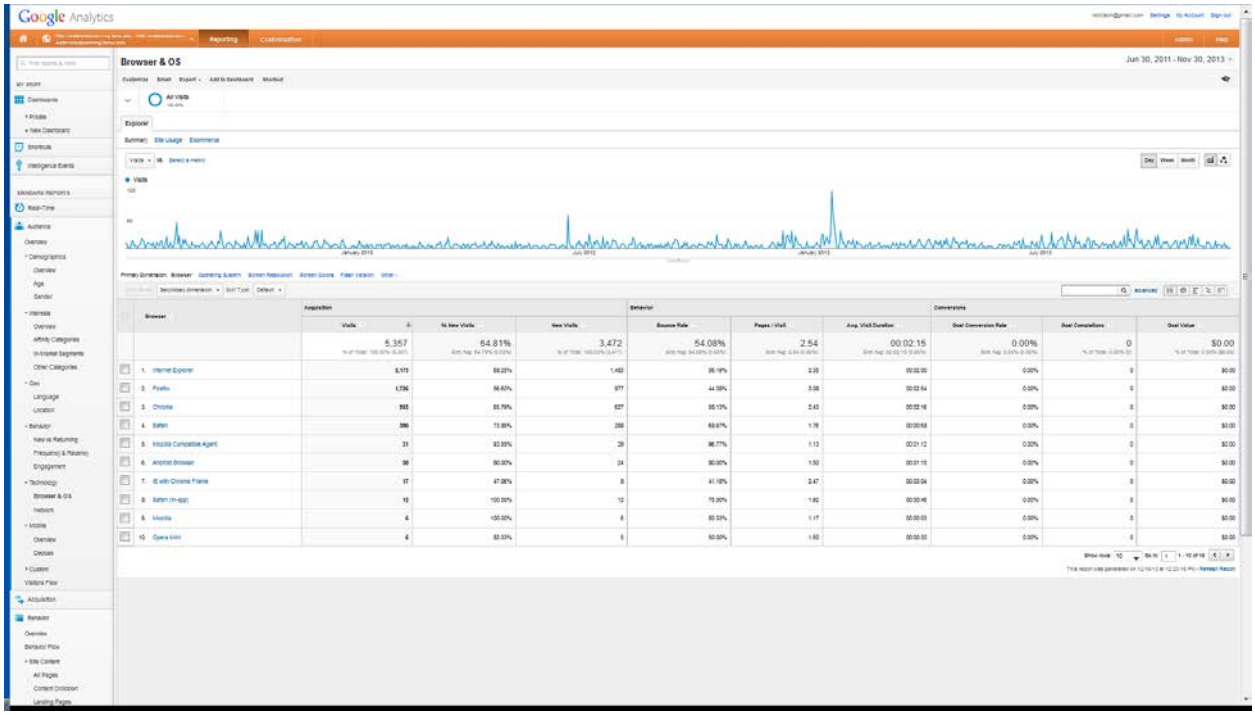
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Appendix B: Watershed Planning Short Course Manual Outline

Texas Watershed Planning Short Course
CD Table of Contents

Ag BMPs

Arroyo Colorado WPP Implementation Resources
- Sustainability
- Bimonthly updates & Newsletter
- O&E and Presentations
- Workgroup Agendas and Summaries
- Steering Committee Agendas and Summaries
- Publications and the Pachanga (Public Release of WPP)
- Pre Survey Watershed Assessment

Clueless Template

EPA Handbook, Getting In Step Guide, & WBP Review Guide

LDC Guidance

Monitoring Guidance

Plum Creek WPP Development Resources

Presentations
- Monday Presentations
- Tuesday Presentations
- Wednesday Presentations
- Thursday Presentations
- Friday Presentations

TCEQ Publications
- TX Surface WQ
- Preserving & Improving WQ
- Rights to Surface Water
- Texas Clean Rivers Program
- Procedures to Implement TWQS

Urban BMPs

Watershed Plans
- Texas WPPs
  - Plum Creek WPP
  - Upper San Antonio WPP
  - Arroyo WPP
- Other WPPs
  - Crab Orchard Creek Watershed Plan
  - Millers Creek Plan
  - Blacks Creek Plan
  - Deckers Creek Plan
  - Mill Creek WIP
  - Beaver & Little Creek TMDL-IP
  - Yellow Bank Creek Watershed Plan
  - South Branch Yellow Medicine River IP
  - Corsica River Plan

Texas Watershed Planning Short Course
Instructor Biographies

Dr. Kenneth Edward Banks is currently employed as the Director of Environmental Services at the City of Denton, Texas and is an adjunct faculty member of the University of North Texas. His research interests include storm water, watershed management, aquatic toxicology, aquatic ecology, and fate and effects of contaminants.

He received his doctorate in Environmental Science from the University of North Texas and has worked on projects with the U.S. Environmental Protection Agency, the U.S. Army Corps of Engineers, the U.S. Forest Service, and the Bureau of Land Management.

Michael R. Bira is with the U.S. Environmental Protection Agency Water Quality Protection Division Watershed Section. Bira graduated from the University of Tampa in Florida with a Bachelor of Science in Marine Biology and Chemistry. He earned a Master of Science in Aquatic Biology from Southwest Texas State University in San Marcos, Texas.

He began his career with EPA as an Environmental Scientist at Region 6 in Dallas in 1988. For the first two years, he served as a Hazardous Waste Enforcement Coordinator, and his duties included coordination of Federal enforcement actions against violators of regulations under the Resource Conservation and Recovery Act. Since 1990 Bira has been in the Water Quality Protection Division and worked with the Clean Lakes Program, Nonpoint Source Program, water quality standards, watersheds, nutrient criteria development, and water quality outreach.

As Volunteer Monitoring Coordinator for the region, Bira has been actively involved with citizen monitoring programs and assisting states and communities with addressing water quality problems through the watershed approach. He has helped conceptualize and develop volunteer water quality monitoring programs in Texas, Oklahoma, Louisiana, and Arkansas. He has assisted with training of State personnel and volunteer monitors and has assisted with federal financial support for citizen monitoring efforts.

Bira's current responsibilities for EPA Region 6 include Nutrient Coordinator, Volunteer Monitoring Coordinator, and Technical Lead for Nonpoint Source Program implementation in the State of Oklahoma.

Bira worked for five years as an Aquatic Biologist/Field Investigator for the Texas Water Commission (now Texas Commission on Environmental Quality), performing inspections and sampling of domestic, municipal, industrial, and agricultural wastewater dischargers, and coordinating the Commission's North Central Texas surface water monitoring program.

Mitch Conine currently serves as the Project Management Coordinator for the Texas State Soil and Water Conservation Board (TSSWCB) Nonpoint Source Management Program. Headquartered in Temple, Texas, the

TSSWCB is the lead agency in Texas responsible for planning, implementing, and managing programs and practices for preventing and abating agricultural and silvicultural nonpoint sources of water pollution. His responsibilities include supervising and supporting the daily activities of the TSSWCB nonpoint source project managers. He has six years of experience in watershed assessment and planning, project implementation, and program management.

Conine is a graduate of Texas A&M University in College Station, where he earned a Bachelor of Science in Wildlife and Fisheries Science in December 2001. Prior to joining the TSSWCB staff as a nonpoint source project manager in 2007, he worked as a District Executive with Longhorn Council Boy Scouts of America from 2003-2007.

Thomas E. Davenport has worked for the U.S. Environmental Protection Agency since 1984 and has been EPA's National NPS Expert since 1991. He administers the Section 319 National Nonpoint Source Monitoring Program and provides technical and program assistance to the watershed, urban storm water wetlands, lakes, and TMDL and NPS programs nationally.

Davenport received a Bachelor of Science in Forestry and Natural Resource Management from the University of Wisconsin-Stevens Point in 1977 and a Master of Science from the University of Washington in Forest Hydrology in 1981. In 1982, he received a Master of Public Administration from Sangamon State University.

Davenport previously led the Water Program for the Great Lakes/Baltic Seas Watershed Management Capacity Building Project and was technical manager on the Chile Free Trade Environmental Project and Panama Canal Expansion Training. He serves as a resident faculty member and co-designer/manager of the Watershed Partnership Seminar for the Office of Personnel Management. He is currently working with Canada on the implementation of the Great Lakes Water Quality Agreement' Annex 4 provisions, and on an ongoing basis, he provides management and technical assistance to EPA Programs at the regional, national, and international levels.

While at the Illinois Environmental Protection Agency, Davenport assisted in the development and establishment of the State's Watershed, Clean Lakes and Nonpoint Source Programs. His responsibilities included the management of the USDA Rural Clean Water Program's Comprehensive Monitoring and Evaluation Project for Highland Silver Lake and the Blue Creek Special Water Quality Project.

Davenport has authored "The Watershed Project Management Guide" and coauthored the urban management measures chapter of the "Coastal Zone NPS Management Guidance" and the urban nonpoint source management chapter in the UNESCO publication, "Assessment and Control of Nonpoint Source Pollution of Aquatic Ecosystems/A Practical Guide." He previously served on the editorial board of EPA's Nonpoint Source News Notes newsletter and the Center for Watershed Protection's Watershed Protection Techniques Bulletin, and was agency advisor to the Conservation Technology Information Center and an associate research editor of the Journal of Soil and Water Conservation, as well as editorial board member.

Nikki Dictson is an Extension Program Specialist II for the Texas A&M Institute for Renewable Natural Resources and Texas Water Resources Institute in College Station. She received her bachelor's, with a double major in Wildlife Science and Fisheries Science, at New Mexico State University and her master's in Wildlife and Fisheries Science at Texas A&M University. Dictson is coordinating the Texas Stream and Riparian Ecosystem

Education and the Texas Watershed Training programs, while also working on watershed planning and TMDL projects at the institute. During the previous seven years in Texas A&M's Soil and Crop Sciences Department, Dictson was the Coordinator for the Plum Creek Watershed Protection Plan and Implementation Program, developed many educational publications and outreach programs, and was on the team conducting the Geronimo and Alligator Creeks Watershed Protection Plan and the Texas Watershed Steward Educational Program. She has been on the planning team, a facilitator, and instructor at the Watershed Planning Short Course since the course's beginning.

Dictson has been with Extension for 11 years, beginning in the Rangeland Ecology and Management (RLEM) Unit where she coordinated the Water for Texans Educational Program — a statewide educational program of paired plot watershed demonstrations evaluating various management practices on runoff and sediment loss. While with the RLEM Unit, she also developed rangeland stream, riparian and upland health educational materials; developed an online RLEM 101 agent training course; and conducted field day trainings and educational programs across the state. Dictson has also been an instructor for workshops of the Texas Riparian Association and is currently on its Board. Prior to working with Extension, she was a Natural Resource Consultant in Seattle, working on a variety of watershed issues with a focus on biological assessments of major construction projects for endangered species issues with local, state and federal agencies.

Brian Fontenot currently works in the U.S. Environmental Protection Agency's Water Quality Protection Division Watershed Section. Fontenot grew up in Southeast Texas and finished his bachelor's degree in Wildlife and Fisheries Sciences from Texas A&M University in 2000. After spending time working as an Environmental Consultant in California and Nevada, he received his master's degree in Biology at the University of Texas at Tyler in 2003. He earned his doctorate in Quantitative Biology from the University of Texas at Arlington in 2009.

Fontenot is a biologist with extensive training in ecology, field techniques, statistics, genetics, and herpetology. He worked as a joint National Institute of Health postdoctoral fellow with UT Arlington and Indiana University for one year until accepting a job as a Life Scientist with EPA in 2010. He also conducts independent research with UT Arlington examining private drinking water well quality in areas of the Barnett Shale with unconventional natural gas extraction. Fontenot is the Region 6 Nonpoint Source Program Manager for Native American Tribes, the State of New Mexico, and the State of Arkansas, and he serves as the Regional Coordinator for EPA's Healthy Watersheds Initiative.

Ryan A. Gerlich is an Extension Program Specialist in the Biological and Agricultural Engineering Department for the Texas A&M AgriLife Extension Service. He received his bachelor's degree in Agricultural Systems Management from Texas A&M University and is pursuing a master's in Water Management and Hydrologic Science at Texas A&M University.

Gerlich is a TCEQ Licensed Irrigator, On-site Sewage Facilities (OSSF) Installer I and OSSF Maintenance Technician. He is also a Registered Inspector through the New England Onsite Wastewater Treatment Program. He is supporting the development of guidelines and curriculum for the inspection of conventional OSSFs in Texas. Gerlich is currently assisting to identify and inspect potentially failing systems along the Texas Coast. He also develops and delivers courses and educational materials to homeowners with OSSFs. Courses range from the two-hour introductory course to a six-hour course discussing the homeowner maintenance of aerobic treatment units.

Kyle Girten is the Team Leader for the Nonpoint Source Pollution Program in the Texas Commission on Environmental Quality (TCEQ)'s Water Quality Planning Division. He was hired to this position in June 2013. Girten previously worked for more than 12 years in TCEQ's Quality Assurance Section. During that time, he served as a QA Specialist for the NPS and TMDL Programs, developed policies and procedures for the agency, and performed technical audits of environmental laboratories across the state. Before working at TCEQ, he worked as an Analytical Chemist in a commercial environmental laboratory in Austin.

Girten received his Master of Public Affairs from the LBJ School of Public Affairs, University of Texas at Austin. He has a Bachelor of Science in Chemistry and a Bachelor of Arts in Anthropology from Indiana University.

Dr. Daren Harmel is a Research Agricultural Engineer and Director of the USDA-Agricultural Research Service (ARS) Laboratory in Temple, Texas. His research focuses on developing practical guidance for runoff and water quality data collection, determining the uncertainty in measured hydrology and water quality data, and quantifying the impacts of land use on water quality and hydrology.

Harmel received his doctorate in Biosystems and Agricultural Engineering from Oklahoma State University in 1997 with a major in Hydrology and Water Quality.

Harmel represents USDA-ARS on the National Water Monitoring Council Methods and Data Comparability Board.

Dr. Larry Hauck is the Lead Scientist at the Texas Institute for Applied Environmental Research (TIAER) at Tarleton State University located in Stephenville, Texas. He has been employed at TIAER for more than 15 years, and prior to his present employment worked for various governmental agencies and environmental consulting firms resulting in 30-plus years of professional experience. He is a Professional Engineer within the State of Texas and obtained his doctorate from The University of Texas at Arlington. As manager of the environmental sciences and economic program at TIAER, Hauck supervises a staff of about 20 full-time professionals, including chemists, biologists, economists, hydrologists and soil scientists, and typically six or more student workers and graduate assistants.

Hauck's research interests include landscape loading of nutrients in agricultural watersheds, biological and chemical response of receiving waters to nutrient enrichment, connection of land management of agricultural practices to receiving water quality, and development and application of watershed loading models and hydrologic/water quality models. He has recently been involved in projects involved with recreational and aquatic life uses of water bodies and applying the load duration curve method in the TMDL process. He is presently the Project Manager for several projects through the TCEQ Water Quality Planning Division.

Charlie MacPherson has exceeded the average life expectancy at a consulting firm by recently celebrating her 27th year at Tetra Tech, Inc. where she serves as the Head of Corporate Communications. She has worked with dozens of organizations ranging from her son's fifth grade science class to the Turtle Mountain Band of the Chippewa Indians to develop and effectively communicate environmental solutions to our everyday actions. For the U.S. Environmental Protection Agency, MacPherson co-authored the guidebooks "Getting In Step: A Guide to

Effective Outreach in Your Watershed," "Getting In Step: A Guide to Engaging and Involving Stakeholders in Your Watershed," and the "Handbook for Developing Watershed Plans to Restore and Protect our Waters."

Debbie Magin is the Director of Water Quality Services for the Guadalupe-Blanco River Authority (GBRA), in Seguin, Texas. She received her Bachelor of Science degree in Aquatic Biology from Southwest Texas State University (now Texas State University) in 1976 and her Master of Science in Aquatic Biology from Southwest Texas State University in 1988.

Magin represents GBRA in the Plum Creek Watershed Partnership and is the GBRA Project Manager for the Geronimo and Alligator Creek Watershed Protection Plan. She has been with GBRA for 37 years, beginning in the Regional Laboratory as a Laboratory Analyst. In her capacity as Director of Water Quality Services, she is responsible for managing the GBRA Clean Rivers Program activities. She also oversees laboratory and water quality monitoring activities, and assists GBRA water and wastewater operations by renewing permits, consulting on rules and regulations, and managing the GBRA security policy. Magin oversees the Aquatic Vegetation Management Program at GBRA, provides technical support to GBRA divisions and customers, and manages several water quality and monitoring grants.

She has served as President of the Texas Water Utilities Association and the TWUA Laboratory Analyst Association and is on the Board of the San Antonio Bay Foundation.

Shanon Phillips is the Water Quality Division Director for the Oklahoma Conservation Commission (OCC). She earned her bachelor's degree in Biology from Kansas State University and her master's in Zoology from Oklahoma State University, studying nutrient impacts in lakes. She has been working on water quality protection programs in Oklahoma State government for more than eighteen years. Her agency is the lead agency for nonpoint source pollution. Much of the OCC's work focuses on collaboration with Conservation Districts to help agricultural producers protect water quality and reduce soil erosion. The OCC's water quality programs have been recognized nationally for efficiency, innovation, leadership, and success.

Phillips lives in Oklahoma City with her husband Jon and 11-year-old son Cooper. The daughter of two science teachers, she grew up with an appreciation for the importance of environmental protection. She is a Board Member of the Oklahoma Clean Lakes Association and a Member of the State Chapter of the Soil and Water Conservation Society.

Travis Tidwell joined the Texas Stream Team in June of 2012. Before taking the position as the Volunteer Coordinator, Travis worked with the National Oceanic and Atmospheric Administration on the Natural Resource Damage Assessment of the Deepwater Horizon oil spill. Prior to that, he worked for the Texas Parks and Wildlife Department at the AE Wood Fish Hatchery in San Marcos, Texas, and he also worked for the National Marine Fisheries Service as a Fishery Observer in the Gulf of Alaska and Bering Sea.

Tidwell received a Bachelor of Science in Biology from the University of Texas at Austin and a Master of Science in Marine Science from the University of Texas Marine Science Institute in Port Aransas, where he studied the early life history of billfish.

Tidwell lives in New Braunfels, where he spends as much of his free time as he can fly fishing and kayaking on the Guadalupe River.

Dr. Kevin Wagner is the Associate Director of the Texas Water Resources Institute and the Texas A&M Institute of Renewable Natural Resources in College Station. He received his bachelor's degree in Biology at Howard Payne University, his master's degree in Environmental Science from Oklahoma State University, and his doctorate in Agronomy at Texas A&M University.

Wagner has 17 years of experience in watershed assessment and planning, project implementation, and program management. His experience ranges from water sampling and analysis to developing projects and policies to restore impaired water bodies. He has conducted research on several water quality issues, including an evaluation of lake sediment, development of lake health indicators, and assessment of bacteria runoff from grazing lands.

Appendix D: Watershed Planning Short Course Agenda

Texas Watershed Planning Short Course

Course Agenda – November 4-8, 2013

Monday, November 4, 2013 **Facilitator: Kevin Wagner**

11:00 – 1:00 pm **Registration (Distribute Knowledge Assessment)**

A pre-course examination will determine the knowledge level of each participant prior to going through the course. The pre-course exam results will be compared to the post-course exam results to assess course impact/knowledge gained.

1:00 – 2:30 pm **Introduction ..... Wagner**

This session will provide (1) the opportunity for participants to introduce themselves and the watersheds they are working in, (2) information on facilities and ground rules, (3) an overview of the course and its purpose and structure, (4) an overview of the Nine Elements to be included in a WPP as outlined in Chapter 2 of the *Handbook* and (5) a synopsis of the EPA Region 6 Review Guide for Watershed-Based Plans.

2:30 – 3:30 pm **Perspectives on Watershed Planning..... Panel**

A panel composed of EPA, TSSWCB, and TCEQ will discuss (1) the goals and importance of WPPs, (2) how WPPs fit into state and federal objectives and interact with other state and federal programs, and (3) current issues affecting watershed planning efforts including new grant guidance, etc.

3:30 – 3:50 pm **Break**

3:50 – 5:15 pm **Working with Stakeholders to Move the Process Forward ..... MacPherson**

Stakeholders form the backbone of your watershed planning effort. Learn tips on how to get off on the right foot and keep the energy going throughout your watershed planning and implementation program. Topics to be addressed include: determining who needs to be involved, making meetings count, diffusing conflict, making decisions using a consensus-based approach, and sustaining the stakeholder group (Chapter 3 of the *Handbook*).

5:15 – 6:00 pm **Partnership Building Experiences in Plum Creek ..... Dictson**

Experiences in Plum Creek watershed with getting local involvement, announcing meetings, setting up the committee and subcommittees, publicizing the effort, what needs to be discussed/decided at each meeting, and timelines will be discussed. Sample invitation letters, ground rules, press releases, and other materials will be provided.

6:45 pm **Dinner**

Tuesday, November 5, 2013 **Facilitator: Nikki Dictson**

7:00 – 8:00 am **Breakfast**

8:00 – 8:15 am **Expectations for Element E ..... Dictson**

The expectations for and an example of Element E will be reviewed and discussed to provide participants with an understanding of the information/ education components of the WPP.

8:15 – 9:15 am **Using Outreach to Develop and Implement WPPs ..... MacPherson**

Outreach is a powerful tool to get stakeholders involved early in the planning process, promote behavior change in the watershed, and enhance implementation of management strategies in the watershed. Learn tips and tools to conduct effective outreach without breaking the bank (Chapter 12.2 of the *Handbook*).

9:15 – 9:45 am **Expectations for Element A ..... EPA**

The expectations for and an example of Element A will be reviewed and discussed to provide participants an understanding of what is necessary to identify causes and sources of water quality impairments and concerns.

9:45 – 10:00 am **Break**

10:00 – 10:40 am **Defining the Scope of the WPP ..... Wagner**

This session will discuss identifying issues of concern, developing preliminary goals, and selecting indicators of environmental conditions (Chapter 4 of the *Handbook*).

10:40 – 11:40 am **Gathering data to assess your watershed ..... Dictson**

What data do you need? Where do you find the data? How do you get info from TCEQ and other agencies? This session will examine (1) materials from Chapters 5-6 of the *Handbook*; (2) how GIS may be used for watershed analysis, source identification and watershed characterization; and (3) sources of data in Texas and how best to obtain it.

11:40 – 12:00 pm **Estimating OSSF density in rural watersheds ..... Wagner**

This session will discuss an approach to estimating on-site sewage facility (OSSF) numbers and locations in rural watersheds.

12:00 – 1:00 pm **Lunch**

1:00 – 2:10 pm **Analyzing Data to Characterize Your Watershed ..... Davenport**

How do you analyze your data? What tools are available? Is modeling needed? This session will review Chapters 7 and 8.1-8.2 of the *Handbook* in order to provide

participants an understanding of the methods/options available for analyzing watershed data and estimating pollutant loads. Simplistic methods for calculating loads and assessing sources will be presented. The session will also examine refining goals, identifying management objectives, and determining load reductions needed (Chapter 9 of the *Handbook*).

2:10 – 3:10 pm **The Good, the Bad, and the Ugly ..... MacPherson**

Participants will learn techniques to improve their outreach materials and critique samples to determine their effectiveness in reaching the audience and communicating the message.

3:10 – 3:30 pm **Break**

3:30 – 4:00 pm **Expectations for Element B .....EPA**

The expectations for Element B will be reviewed and discussed to provide participants with an understanding of the level of detail and effort needed to determine 'acceptable' pollutant loadings, and whether or not load reductions are needed to reach acceptable levels.

4:00 – 5:15 pm **Overview of Models for Estimating Pollutant Loads & Reductions Hauck**

If modeling is needed, what models are available and how do you select a model? This session will examine Chapter 8.3-8.5 of the *Handbook* to give participants an overview of the models available, expectations for what each model can deliver (i.e. what you can and cannot get from them), costs, and factors to consider when selecting models (i.e. timelines and data needs).

6:45 pm **Dinner**

Wednesday, November 6, 2013 **Facilitator: Dictson/Wagner**

7:00 – 8:00 am **Breakfast**

8:00 – 9:00 am **Simple Tools for Estimating Loads and Load Reductions ..... Hauck**

This session will describe and demonstrate simple tools (i.e. load duration curves (LDC) and SELECT model) to determine needed pollutant load reductions and assess potential sources of the pollutants. This session will also demonstrate the use and integration of LDC, and SELECT models in the development of the Plum Creek WPP.

9:00 – 9:30 am **Overview and Expectations for Element C .....EPA**

This session will provide a discussion of expectations for Element C as well as steps to select management practices (Chapter 10 of the *Handbook*).

9:30 – 10:20 am **Agricultural NPS Measures.....Wagner**

Agricultural nonpoint source measures in Texas are typically implemented through SWCDs, TSSWCB, and NRCS as part of a Water Quality Management Plan or Resource Management System. This session discusses (1) agricultural BMPs and these plans, (2) how to develop a preliminary list of agricultural BMPs to address the issues of concern, (3) finding information on the effectiveness of agricultural BMPs, and (4) estimating BMP implementation costs.

10:20 – 10:40 am **Break**

10:40 – 11:30 am **Urban NPS Measures..... Davenport**

This session will provide an overview of (1) urban NPS measures, (2) how to develop a preliminary list of urban BMPs to address the issues of concern, (3) finding information on the effectiveness of urban BMPs, (4) estimating BMP implementation costs; and (5) stormwater permitting.

11:30 – 12:00 pm **Overview of Educational Programs.....Wagner**

This session provides an overview of the Texas Watershed Steward, Texas Well Owner Network, Lone Star Healthy Streams, and other education programs. Incorporation of these programs into WPP efforts empowers stakeholders by providing them with the knowledge to make informed decisions about water resources.

12:00 – 1:00 pm **Lunch**

1:00 – 2:30 pm **Wastewater Treatment Systems, Wastewater Issues,**

Permits and Online Wastewater Treatment Modules .....Magin/Gerlich

A presentation providing a brief overview of wastewater treatment systems (WWTFs and OSSFs), their impacts, and effectiveness in removing pollutants in addition to identifying and addressing wastewater treatment system issues in your watershed. As well as an overview of Online Educational Modules on wastewater treatment plants, onsite wastewater treatment systems and fats, oils, and grease.

2:30 – 3:15 pm **Gas Well Drilling and Stormwater .....Banks**

In 2005, EPA awarded funding to Denton, Texas, to monitor and assess the impact of gas well drilling on stormwater runoff, and to provide regulatory and management strategies for these activities. The results and recommendations for managing this nonpoint source will be reviewed.

3:15 – 3:35 pm **Break**

3:35 – 4:35 pm **Texas Riparian and Stream Ecosystems ..... Dictson**

This session will present information on riparian and stream ecosystems, their function and benefits, and a new educational program to restore and protect them.

4:35 – 5:20 pm **Protecting Riparian Areas, Streams and Environmentally**

Sensitive Areas with Municipal Codes in Urban Areas ..... Banks

Denton, one of the fastest growing cities in Texas, has served as a leader in the protection of riparian areas, streams, floodplains and environmentally sensitive areas. This session will highlight their strategies.

6:45 pm **Dinner**

Thursday, November 7, 2013 **Facilitator: Nikki Dictson**

7:00 – 8:00 am **Breakfast**

8:30 – 9:30 am **Economics of BMP selection in the Hickory Creek Watershed ..... Banks**

This session will discuss the economic analyses used to select the most cost effective BMPs for use in attaining the site-specific objectives of watershed management in the Hickory Creek watershed.

9:30 – 10:00 am **Expectations for Element D ..... EPA**

This session will discuss expectations for Element D which describes the financial and technical assistance needs and identifies the sources/authorities that will be relied on for implementation (Chapter 12.7 of the *Handbook*).

10:00 – 10:20 am **Break**

10:20 – 10:50 **Funding Sources for Implementation ..... Dictson**

This session will discuss sources of funding in Texas for implementation of WPPs along with match requirements and the mechanisms for requesting it.

10:50 – 11:20 am **Expectations for Elements F, G, and H ..... Wagner**

The expectations for Element F, G, and H will be reviewed to provide insight on the level of detail and effort needed to schedule implementation, describe interim milestones, and establish criteria to determine if load reductions are achieved.

11:20 – 12:00 pm **Targeting Critical Areas and Scheduling Implementation..... Davenport**

To achieve the most effective and immediate benefit, BMP implementation must be targeted to the most critical areas. This session discusses the targeting of control measures and the importance of this effort to the ultimate success of the WPP. This session also discusses scheduling implementation efforts (Element F) as described in the final management strategy (Chapter 12.3 of the *Handbook*).

12:00 – 1:00 pm **Lunch**

1:00 – 1:40 pm **Developing Interim Milestones & Criteria to Measure Progress.... Davenport**

This session will discuss developing interim measurable milestones (Element G) and establishing a set of criteria to measure progress (Element H) toward meeting water quality goals (Chapter 12.4-12.5 of the *Handbook*). This is the point in the WPP where you define in realistic terms how you will determine (1) if you are on track and making progress or not, (2) how/when you evaluate your progress, and (3) what to do if watershed improvements are not on track.

1:40 – 2:40 pm **Designing & Implementing Effectiveness Monitoring – Element I ..... Hauck**

This session will provide guidance on developing Element I (Chapter 12.6 of the *Handbook*). Selecting an appropriate experimental design that incorporates previous and ongoing monitoring efforts will be discussed.

2:40 – 3:10 pm **Putting It All Together.....Dictson**

This session will discuss assembling a WPP, gaining stakeholder approval, submitting the WPP for state and federal review, developing an evaluation framework and devising a method for tracking progress (Chapter 12.8-12.11 of the *Handbook*).

3:10 – 3:30 pm **Break / Hayride to River for Next Presentation**

Please note: Participants will divide into 3 groups for the presentations below

3:30 – 5:00 pm **Water Quality Monitoring:**

Practical Guidelines & Lessons Learned .....Harmel/Banks/Tidwell

An overview of the how to use automated samplers and data sondes will be discussed. Practical guidance on installation and operation will be presented along with information on difficulties encountered and data uncertainty and how to communicate to stakeholders. In addition, a stream side presentation regarding the Texas Stream Team will describe how trained citizen monitoring efforts are valuable components to any WPP or ambient monitoring program. Staff will also demonstrate field collection data techniques and provide hands-on opportunities for interested participants. ***sessions are 30 minutes each***

6:45 pm **Dinner**

Friday, November 8, 2013 **Facilitator: Kevin Wagner**

7:00 – 8:00 am **Breakfast**

8:00 – 8:45 am **Implementing Watershed Protection and**

Management Strategies in Hickory Creek ..... Banks

This presentation will discuss implementing BMPs in Hickory Creek, Denton, Texas. The presentation will briefly discuss modeling and analyses conducted for the watershed and describe the process of working with modeling information, economic analyses, and a stakeholder group to target and implement demonstration management practices within the watershed. The presentation will also cover how the information learned during this process and additional analyses were used to implement best management practices in a large master planned development in the Hickory Creek Watershed.

8:45 – 10:00 am **Watershed Protection Plan Implementation in Oklahoma ..... Phillips**

This session will focus on watershed protection plan development and implementation efforts in Oklahoma, their experiences, and lessons learned.

10:00 – 10:20 am **Break**

10:20 – 10:50 am **Perspectives on Watershed Group Organization ..... Dictson**

As watershed protection efforts move beyond planning stages, transition to implementation and maintaining public involvement raise some challenges with implications on long-term sustainability. This presentation will discuss approaches for sustaining your watershed group once your watershed plan has been developed.

10:50 – 11:05 am **Tracking WPP Implementation ..... Wagner**

This session will focus on Arroyo Colorado Watershed Protection Plan implementation efforts built upon the stakeholder efforts and partnerships developed during the WPP development process. Topics include implementation strategies, adaptive management, and approaches to addressing long-term sustainability of WPPs (i.e. grant writing, developing 501(c)(3), collaborating with existing organizations, and creating community level commitment).

11:05 – 11:25 am **WPP Updates and the 4b Process in Plum Creek ..... Dictson**

WPPs are living documents and need to be updated periodically. This session will discuss lessons learned during the biennial update to the Plum Creek WPP. Further, to delist a watershed as a result of development of a WPP, additional assurances must be provided. This session will also discuss the 4b process and lessons learned through the efforts in the Plum Creek watershed.

11:25 – 11:35 am **Course Wrap-Up……...Wagner**

This session will briefly review the 9 Key Elements and EPA Review Guide.

11:35 – 12:00 pm **Knowledge Assessment/Course Evaluation**

A post-course examination will be distributed to determine course impact and knowledge gained. A course evaluation will also be distributed to gain feedback on how to improve the course.

12:00 pm **Adjourn; Lunch**

Certificates will be distributed as the class turns in their post-course exam and course evaluations.

Appendix E: Watershed Planning Short Course Pre/Post Exam

Texas Watershed Planning Short Course Pre-/Post-Test

(1) **List 6 steps in a comprehensive watershed planning process.** ***(4 points each)***

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

(2) **According to the EPA Handbook for Developing Watershed Plans, what are the 9 elements of a fundamentally-successful watershed plan?** ***(4 points each)***

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

g. _____

h. _____

i. _____

(3) **List three local individuals/groups you should contact when beginning watershed planning activities in a <u>rural watershed</u>.** ***(6 points total)***

a. _____

b. _____

c. _____

(4) Who is ultimately responsible for approving watershed plans? ***(2 points total)***

a. TSSWCB
b. Stakeholders
c. TCEQ
d. EPA
e. All of the above
f. None of the above

(5) Load duration curves can estimate loading during time periods when there is no sampling by establishing relationships between: ***(2 points total)***

a. Stream flow and pollutant concentration
b. Land use activity and rainfall
c. Rainfall-runoff relationship
d. None of the above

(6) Which is the more accurate method of estimating pollutant loads? ***(2 points total)***

a. Unit area load
b. Calculation of load based on monitoring data
c. Watershed modeling
d. Watershed surveys

(7) According to the EPA Handbook, what is the preferred method for evaluating BMP efficiency during watershed planning? ***(2 points total)***

a. Model BMP effects
b. Use literature values
c. Monitoring
d. Best professional judgment

(8) One of the most common reasons why water quality control measures fail is failure to _____ ***(2 points total)***

a. Spend adequate funds up front for the most effective controls
b. Provide adequate oversight during the construction phase
c. Locate the controls properly
d. Budget and fund maintenance costs
e. Implement post project monitoring

(9) When developing management measures for watersheds with multiple pollutant sources, which of the following aids in determining BMP effectiveness? ***(2 points total)***

a. Proximity to impaired segment
b. Self-reporting data
c. A mixed analysis approach
d. Total load management analysis

(10) The Element, "interim measurable milestones," outlines how you will measure: ***(2 points total)***

a. Progress in implementing the management measures
b. Whether or not loading reductions are being achieved
c. Progress in attaining water quality standards
d. All of the above

(11) What factors need to be taken into account when developing an implementation schedule within your watershed protection plan? ***(2 points total)***

a. Availability of funds for capital purchases
b. Staff skills and talents
c. Weather conditions
d. Availability of appropriate technical and technological solutions
e. All of the above
f. None of the above

(12) What hydrologic unit category (HUC) does EPA recommend for watershed planning? ***(2 points total)***

a. HUC 2: A region, largest drainage basin, contains drainage of major river or multiple rivers.
b. HUC 4: Subregions divide regions & include area drained by a river system.
c. HUC 6: Basins divide or may be equivalent to subregions.
d. HUC 8: Subbasins divide basins & represent part or all of a surface-drainage basin.
e. HUC 10: Watersheds divide subbasins and usually range in size from 40,000-250,000 acres.
f. HUC 12: Subwatersheds divide watersheds & usually range in size from 10,000-40,000 acres.

(13) At a minimum, what must you measure to evaluate a load reduction? ***(2 points total)***

a. Concentration
b. Temperature
c. Flow
d. Precipitation
e. Type of pollutant
f. a and c
g. c and d
h. a and e

(14) Which of the following questions is most likely to require a model to answer? ***(2 points total)***

a. Where and when does impairment occur in a water body?
b. Which combination of BMPs will most effectively meet load targets?
c. What are the loads associated with individual sources?
d. None of the above.

(15) The three agencies primarily responsible for <u>implementing</u> agricultural BMPs in Texas are the local Soil and Water Conservation Districts, the Texas State Soil and Water Conservation Board, and the _____. ***(2 points total)***

a. Texas Department of Agriculture
b. Texas AgriLife Research
c. Texas Water Development Board
d. Natural Resources Conservation Service
e. Texas AgriLife Extension Service

(16) Responsibility for decision-making regarding the management of water resources is found at the _____ level. ***(2 points total)***

a. Local
b. Regional
c. State
d. National

(17) The 4 most important types of data you will need for characterizing a watershed are (1) physical and natural features, (2) land use and population characteristics, (3) _____, and (4) _____. (Circle the two that apply) ***(4 points total)***

a. waterbody conditions
b. pollutant sources
c. water use
d. geomorphology
e. streambank stability
f. water sources

(18) When building partnerships, the first step is to: ***(2 points total)***

a. Conduct public outreach
b. Develop indicators
c. Identify key stakeholders
d. Identify issues of concern
e. Set preliminary goals

(19) When characterizing a watershed, the first step is to: ***(2 points total)***

a. Estimate pollutant loads
b. Gather existing data & create a watershed inventory
c. Analyze data
d. Identify data gaps & collect additional data if needed
e. Identify causes & sources of pollution that need to be controlled

Appendix F: Watershed Planning Short Course Evaluation

Texas Watershed Planning Short Course Evaluation
September 24-28, 2012

Name_____

1. Overall, how would you rate the short course?

Unsatisfactory **Most Satisfactory**

1 □ **2** □ **3** □ **4** □ **5** □

2. Using the scale above, how <u>satisfied</u> were you with each of the course topics below?

TOPICS	Level of Satisfaction				
Nine Elements of Watershed Protection Plans *(Bira)*	1	2	3	4	5
Perspectives on WPPs *(EPA, TSSWCB, TCEQ)*	1	2	3	4	5
Working with Stakeholders to Move the Process Forward *(MacPherson)*	1	2	3	4	5
Partnership Building Experiences in Plum Creek *(Dictson)*	1	2	3	4	5
Expectations for Element E *(Dictson)*	1	2	3	4	5
Using Outreach to Develop & Implement WPPs *(MacPherson)*	1	2	3	4	5
Texas Watershed Steward Program *(Roberts)*	1	2	3	4	5
Expectations for Element A *(Fontenot)*	1	2	3	4	5
Defining the Scope of the WPP *(Wendt)*	1	2	3	4	5
Gathering data to assess your watershed *(Dictson)*	1	2	3	4	5
Analyzing Data to Characterize Your Watershed *(Davenport)*	1	2	3	4	5
The Good, the Bad, and the Ugly *(MacPherson)*	1	2	3	4	5
Expectations for Element B *(Wendt)*	1	2	3	4	5
Overview of Models for Estimating Pollutant Loads & Reductions *(Hauck)*	1	2	3	4	5
Simple Tools for Estimating Loads and Load Reductions *(Hauck)*	1	2	3	4	5
Overview and Expectations for Element C *(Fontenot)*	1	2	3	4	5
TSSWCB Presentation *(Wendt)*	1	2	3	4	5

TOPICS	Level of Satisfaction				
Agricultural NPS Measures *(Wagner)*	1	2	3	4	5
Urban NPS Measures *(Davenport)*	1	2	3	4	5
Wastewater Treatment Systems/Issues *(Magin/Gerlich)*	1	2	3	4	5
Building Trust among Watershed Stakeholders *(Vargas)*	1	2	3	4	5
Decision Support Tools for Advancing Triple Bottom Line Analysis *(Vargas)*	1	2	3	4	5
Expectations for Elements F, G, and H *(Wagner)*	1	2	3	4	5
Selecting BMPs: Economics and Finance Issues *(Rister, Banks)*	1	2	3	4	5
Targeting Critical Areas and Scheduling Implementation *(Davenport)*	1	2	3	4	5
Developing Interim Milestones & Criteria to Measure Progress *(Davenport)*	1	2	3	4	5
Designing & Implementing Effectiveness Monitoring- Element I *(Hauck)*	1	2	3	4	5
Water Quality Monitoring *(Harmel, Banks, Tidwell)*	1	2	3	4	5
Expectations for Element D *(Bira)*	1	2	3	4	5
Implementing Watershed Protection & Mgmt Strategies in Hickory Creek *(Banks)*	1	2	3	4	5
Sustaining Watershed Groups for Implementation Success *(Wagner)*	1	2	3	4	5
Putting It All Together *(Dictson)*	1	2	3	4	5
Implementing Your WPP- Arroyo Colorado Case Study *(Flores)*	1	2	3	4	5
Watershed Protection Plan Implementation in Oklahoma *(Phillips)*	1	2	3	4	5
Perspectives on Watershed Group Organization *(Dictson)*	1	2	3	4	5

3. **If you were <u>not</u> "completely satisfied" with the short course, please tell us what we could have done better in order for you to have been "completely satisfied?"**

4. **What was the most significant thing(s) you learned from this short course?**

5. **Which topic(s) covered by this short course, if any, would you have liked discussed in greater detail?**

6. **What topic(s), if any, did you have a particular interest in but was <u>not</u> covered by the short course?**

7. **What topic(s), if any, should be omitted from future short courses?**

8. **How satisfied were you with the quality of the course materials? Are there additional resources that should be provided at future courses?**

9. **What is your level of satisfaction with the sequencing of topics?**

10. **What will be the first 3 steps you'll implement as a result of taking this training?**

11. **Looking beyond the course, in your opinion what could the state and/or federal agencies do to best serve you in your WPP efforts?**

12. **What other tools, training, capacity building, etc. (if any) would you suggest to serve your efforts in WPP planning?**

13. **What was your level satisfaction with the training location and facility?**

14. **How would you rate the WPP you are involved in as meeting the intent of EPA's WPP guidelines?**

15. **In your watershed, what are the local strengths for success?**

16. **In your watershed what are the local obstacles for success?**

Appendix G: Watershed Planning Trainings Schedule

Workshop	Instructor	Workshop Date	Location	Course
Introduction to Modeling Training	Srini	24-Jan-13	Temple	completed
Introduction to Modeling Training	Srini	Aug. 13, 2013	Austin	completed
LDC/SELECT Training	Karthi	November 6-7, 2012	College Station	completed
LDC/SELECT Training	Karthi	May 7-8, 2013	College Station	completed
Stakeholder Facilitation Training	MacPherson	July 26, 2011	Austin	completed
Stakeholder Facilitation Training	MacPherson	January 24, 2012	Waco	completed
Texas Watershed Coordinator Roundtable	n/a	January 25, 2011	Temple	completed
Texas Watershed Coordinator Roundtable	n/a	July 27, 2011	Austin	completed
Texas Watershed Coordinator Roundtable	n/a	January 25, 2012	Waco	completed
Texas Watershed Coordinator Roundtable	n/a	July 26, 2012	College Station	completed
Texas Watershed Coordinator Roundtable	n/a	January 22, 2013	Temple	completed
Texas Watershed Coordinator Roundtable	n/a	July 30, 2013	Dallas	completed
Texas Watershed Planning Short Course	multiple	November 14-18, 2011	Bandera	completed
Texas Watershed Planning Short Course	multiple	September 24-28, 2012	Bandera	completed
Texas Watershed Planning Short Course	multiple	November 4-8, 2013	Bandera	completed
Water Quality Monitoring Training	Larry Hauck	October 3-4, 2012	Austin	completed
Water Quality Monitoring Training	Larry Hauck	October 23-24, 2013	Temple	completed

Appendix H: Agendas for Roundtables and Trainings

Texas Watershed Coordinator Roundtable
"Stakeholder Involvement and Facilitation"

January 25, 2011
9:30 a.m. – 3:30 p.m.
Texas AgriLife Research & Extension Center at Temple

Agenda

9:30 – 9:45 a.m.	Welcome & Introductions [Kevin Wagner, TWRI]
9:45 – 10:45 a.m.	Decision Support System for Cypress Creek [Jason Pinchback & Adrian Vogl, River Systems Institute at Texas State University-San Marcos] ▪ Developing a DSS and how local stakeholders can be involved in manipulating data to make decisions on BMPs
10:45 – 11:00 a.m.	Networking Break
11:00 – 12:00 p.m.	Panel Discussion: Involving stakeholders in meaningful decision making ▪ *Facilitator:* Diane Boellstorff, Texas AgriLife Extension Service ▪ *Panelists:* **Ward Ling**, Texas AgriLife Extension Service (Geronimo Creek Watershed); **Jody Carton**, Trinity Basin Conservation Foundation (Trinity River Basin); **Rachel Powers**, Houston-Galveston Area Council (Bacteria Implementation Group)
12:00 – 12:30 p.m.	Catered working lunch (or bring your own) [RSVP required]
12:30 – 1:30 p.m.	Panel Discussion: Re-engaging Stakeholders in Implementation and Adaptive Management and Reporting Success ▪ *Facilitator:* Roger Miranda, Texas Commission on Environmental Quality ▪ *Panelists:* **Jaime Flores**, TWRI (Arroyo Colorado); **Debbie Magin**, Guadalupe-Blanco River Authority (Plum Creek); **Lucas Gregory**, TWRI (Pecos River, Buck Creek)
1:30 – 2:00 p.m.	Stakeholder Facilitation and Conflict Management [Steven Mikulencak, Texas AgriLife Extension Service, Texas Coastal Watershed Program]
2:00 – 2:15 p.m.	Networking Break
2:15 – 2:45 p.m.	Watershed Action Planning (WAP) Process [Kerry Niemann, TCEQ; Arthur Talley, TCEQ] ▪ Status update
2:45 – 3:15 p.m.	Community-Based Planning [Mel Vargas, Parsons Water & Infrastructure Inc.]

3:15 – 3:30 p.m.	Wrap-Up [Kevin Wagner, TWRI]
	▪ Texas Watershed Steward Program [Nikki Dictson]
	  ○ Priority watersheds for 2011 TWS workshops
	▪ Updates on the Texas Watershed Planning project
	  ○ Upcoming training opportunities
	  ○ Next Texas Watershed Planning Short Course
	  ○ New website as a resource (http://watershedplanning.tamu.edu/)
	▪ Next meeting (July 2011)

Texas Watershed Coordinator Roundtable
"Bacteria Dynamics, Assessment Methods, and BMPs"

July 27, 2011
9:30 a.m. — 3:30 p.m.
LCRA Dalchau Service Center, Austin, Texas

9:30 – 9:40 a.m.	Welcome & Introductions [Kevin Wagner, Texas Water Resources Institute]
9:40 – 9:50 a.m.	Stakeholder Questions Regarding Bacteria [Mel Vargas, Parsons]
9:50 – 10:40 a.m.	Effect of Fish and Wildlife on Bacterial Levels
	• The role of fish as sources and vectors of bacteria and the influence of bat colonies on indicator bacterial levels [Dr. George Guillen, Environmental Institute of Houston, University of Houston—Clear Lake] • Evaluation of fecal indicator bacteria loadings from a wildlife point source and sediment resuspension in inland streams [Dr. Michael Barrett, Department of Civil, Architectural, and Environmental Engineering, University of Texas]
10:40 – 11:00 a.m.	Networking Break
11:00 – 11:50 a.m.	Environmental Effects on Bacterial Survival and Growth
	• Fate and transport of *E. coli* in rural Texas landscapes and streams [Dr. Saqib Mukhtar, Department of Biological and Agricultural Engineering, Texas A&M University] • Relationship between Bacteria and Conventional Water Quality Parameters [Dr. Hanadi Rifai, Civil and Environmental Engineering Department, University of Houston]
11:50 – 12:30 p.m.	Catered working lunch (or bring your own) [RSVP required]
12:30 – 1:20 p.m.	Methods for evaluating bacteria sources and loads
	• Comparison of *E. coli* methods [Emily Martin, Soil and Aquatic Microbiology Lab, Texas A&M University] • Arroyo Colorado Bacteria Indicator Study [Rocky Freund, Nueces River Authority]
1:20 – 2:10 p.m.	Effect of management and land use on bacterial concentrations and loading
	• Effects of ag management, land use, and watershed scale on *E. coli* concentrations [Dr. Terry Gentry, Soil and Crop Sciences Department, Texas A&M University]

- Effects of fencing, alternative water, grazing management, and other ag BMPs on bacteria loading [Kevin Wagner, Texas Water Resources Institute]

2:10 – 2:30 p.m. Networking Break

2:30 – 2:55 p.m. Bacterial Regrowth

- Effect of carbon on bacterial regrowth [Dr. Jacqui Peterson, Soil and Crop Sciences Department, Texas A&M University]

2:55 – 3:15 p.m. Roundtable discussion of implications of research findings to watershed planning and implementation [Facilitated by Mel Vargas, Parsons]

- How do these findings affect your watershed planning efforts?
- What are other questions regarding bacteria (i.e. current research needs)?

3:15 – 3:30 p.m. Wrap-Up [Kevin Wagner, Texas Water Resources Institute]

- State Bacterial Source Tracking Conference
  - February 28-29, 2012 at T Bar M in New Braunfels
- Upcoming training opportunities
  - Texas Watershed Steward Program
  - Next Texas Watershed Planning Short Course
  - Next Roundtable (January 2012)
- Other Announcements

Texas Watershed Coordinator Roundtable
"Watershed Management Trends and Tools"

January 25, 2012
9:30 a.m. — 3:30 p.m.
Texas Farm Bureau Conference Center, Waco

9:30 – 9:40 a.m.	Welcome & Overview [Jay Bragg, Texas Farm Bureau; Kevin Wagner, Texas Water Resources Institute]
9:40 – 10:40 a.m.	Statewide Land Trends and Impacts on Water Quality and Quantity [Todd Snelgrove, Texas A&M Institute of Renewable Natural Resources]
10:40 – 11:00 a.m.	Networking Break
11:00 – 12:00 p.m.	Using Watershed Report Cards to Inform Stakeholders on WPP Progress & Water Quality [Bill Dennison, Univ. of Maryland Center for Environmental Science]
12:00 – 12:15 p.m.	Case Study - Plum Creek Progress Reporting [Nikki Dictson, Texas AgriLife Extension Service]
12:15 – 1:00 p.m.	Catered working lunch (or bring your own) [RSVP required]
1:00 – 1:30 p.m.	Utilizing the Interactive Software TurningPoint ® to Facilitate Stakeholder Input [Jackie Smith, Texas AgriLife Extension Service]
1:30 – 3:20 p.m.	Panel Discussion on Clean Water Act §319(h) NPS Grant Program Changes & Strategies for Moving Forward [Kevin Wagner, Texas Water Resources Institute] ▪ Discussion Topics – Management Program Revisions/WAP – OMB & GAO Study Outcomes – EPA R6 Priorities ▪ Panelists – EPA [Henry Brewer, Leslie Rauscher, and Tina Hendon] – TCEQ [Kerry Niemann] – TSSWCB [Mitch Conine & Aaron Wendt]
3:20 – 3:30 p.m.	Wrap-Up [Kevin Wagner, Texas Water Resources Institute] ▪ State Bacterial Source Tracking Conference - February 28-29, 2012 ▪ Texas Watershed Steward Program Update ▪ Next Texas Watershed Planning Short Course ▪ Next Roundtable (July 2012) ▪ Revised SWQM Procedures for Monitoring During Drought ▪ 2012 State Water Plan ▪ Texas Stream Team Update

Texas Watershed Coordinator Roundtable
"Partner Programs for Watershed Planning"

July 26, 2012
9:30 a.m. — 3:30 p.m.
Texas A&M University • Kleberg Center • Room 115
474 Olsen Blvd, College Station 77845

9:30 – 9:40 a.m.	Welcome & Overview [Nikki Dictson, Texas AgriLife Extension Service]
9:40 – 10:40 a.m.	Continuation from January Roundtable: Panel Discussion on Clean Water Act §319(h) NPS Grant Program Changes & Strategies for Moving Forward [Nikki Dictson, Texas AgriLife Extension Service] ▪ Discussion Topics – Management Program Revisions/WAP – OMB & GAO Study Outcomes – EPA R6 Priorities ▪ Panelists – EPA [Henry Brewer, Leslie Rauscher, and Tina Hendon] – TCEQ [Kerry Niemann] – TSSWCB [Mitch Conine & Aaron Wendt]
10:40 – 11:00 a.m.	Networking Break
11:00 – 11:30 a.m.	Supplemental Environmental Projects [Lauren Bilbe, TCEQ]
11:30 – 12:00 p.m.	TPWD Freshwater Conservation Initiatives [Tim Birdsong, Texas Parks & Wildlife Department]
12:00 – 12:45 p.m.	Catered working lunch (or bring your own) [RSVP required]
12:45 – 1:30 p.m.	Texas Well Owner Network [Kristine Uhlman, Texas AgriLife Extension Service]
1:30 – 2:00 p.m.	Texas Stream Team "Data Viewer" Demo [Texas Stream Team]
2:00 – 2:20 p.m.	Networking Break
2:20 – 3:20 p.m.	LID Design Competitions: Changing the Way Stormwater is Managed [David Batts, Houston Land/Water Sustainability Forum]
3:20 – 3:30 p.m.	Wrap-Up [Nikki Dictson, Texas AgriLife Extension Service] ▪ Texas Watershed Steward Program Update ▪ Next Texas Watershed Planning Short Course ▪ Next Roundtable (January 2013) ▪ Texas Stream Team Update

Texas Watershed Coordinator Roundtable
"Catalyzing Success"

Tuesday, January 22, 2012
9:30 a.m. — 3:30 p.m.

Texas A&M AgriLife Blackland Research and Extension Center • TEDC Conf. Room
800 East Blackland Road, Temple, TX 76502

9:30 – 9:45 a.m.	Welcome & Introductions [Kevin Wagner, Texas Water Resources Institute]
9:45 – 10:00 a.m.	Perspectives on Defining Success [Tina Hendon, EPA]
10:00 – 10:40 a.m.	Roundtable Discussion on Achieving Success in Your Watershed
10:40 – 11:00 a.m.	Networking Break
11:00 – 12:00 p.m.	The Role of Social Media in Conservation Science [Amy Hays, Texas A&M Institute of Renewable Natural Resources]
12:00 – 12:40 p.m.	Catered working lunch (or bring your own) [RSVP required]
12:40 – 1:40 p.m.	*WATERSHED: Exploring a New Water Ethic for the New West*
1:40 – 2:00 p.m.	Networking Break
2:00 – 3:00 p.m.	Roundtable Discussion on Achieving Success in Your Watershed, continued
3:00 – 3:15 p.m.	Update on Recreational Use Attainability Analyses [Joe Martin, Texas Commission on Environmental Quality]
3:15 – 3:30 p.m.	Wrap-Up [Nikki Dictson, Texas Water Resources Institute] • Upcoming Trainings: - Texas Watershed Steward - Texas Stream Team - Texas Well Owner Network - Fundamentals of Developing a Water Quality Monitoring Plan - Watershed Modeling Using LDC and SELECT - Introduction to Modeling • Next Roundtable - Date: July 2013 - Possible Topics: Urban NPS; Collection & use of water quality data

Texas Watershed Coordinator Roundtable
"Urban BMPs and Low Impact Development"

Tuesday, July 30, 2013
9:30 a.m. — 3:30 p.m.

Texas A&M AgriLife Research and Extension Center at Dallas
Building C, Large Hall
17360 Coit Road, Dallas, TX 75252

9:30 – 9:45 a.m.	Welcome & Introductions [Kevin Wagner, Texas Water Resources Institute]
9:45 – 10:45 a.m.	Low Impact Development Design, Construction, and Performance [Dr. Fouad Jaber, Texas AgriLife Extension Service]
10:45 – 12:30 a.m.	Tour of installed LID practices onsite
12:30 – 1:10 p.m.	Catered working lunch (or bring your own) [RSVP required]
1:10 – 2:00 p.m.	Updated EPA 319 Grant Program Guidance [Philip Crocker, EPA]
2:00 – 2:20 p.m.	Networking Break
2:20 – 2:35 p.m.	Stormwater Rulemaking Update [Suzanna M. Perea, EPA]
2:35 – 2:55 p.m.	Dallas LID Green Roadway Winner: South Lamar [Ben McWhorter, Freese & Nichols, Inc.]
2:55 – 3:30 p.m.	Wrap-Up [Nikki Dictson, Texas Water Resources Institute] • Upcoming Trainings: - Texas Watershed Steward - Texas Stream Team - Texas Well Owner Network - Riparian and Stream Ecosystem Education - Fundamentals of Developing a Water Quality Monitoring Plan - Watershed Modeling Using LDC and SELECT - Introduction to Modeling • Next Roundtable - Date: January 2014

Introduction to Modeling Training

Texas Commission on Environmental Quality • Austin, TX
August 13, 2013
Agenda

Tuesday, August 13 ***9 a.m. to 5 p.m.***

9:00 a.m.	**Introductions, Overview & How Modeling fits into Watershed Planning** .....Nikki Dictson, TWRI *Provide participants with an introduction to watershed modeling and models available for use. Participants will gain an understanding of what model is needed for watershed protection planning, how modeling results fit in to 9 Elements, and the resources needed to take next steps.*
9:30 a.m.	**Models Overview: Purposes and Limitations** .....R. Srinivasan, TAMU *This presentation will provide a broad overview of purposes and limitations of currently available models including their strengths and weaknesses; validation and calibration.* *Handout: EPA Guidelines Decision Matrix*
10:30 a.m.	**Break**
10:45 a.m.	**Models Overview: Purposes and Limitations** … ..... continued
12:15 p.m.	**Lunch** *(catered lunch or bring your own)*
1:00 p.m.	**Using Simple Tools** ..... Larry Hauck, TIAER *This presentation will discuss how to model with limited observations as well as minimum data or analysis needed (LDC, estimator, export coefficient, literature values, GIS landuse based)*
2:00 p.m.	**Factors to Consider when Modeling: Time & Money** .....R. Srinivasan, TAMU *What are the data needs and requirements for models? This presentation will discuss model capabilities; time; money; etc. and the data available for calibrating/validating models.*
2:45 – 3:00 p.m.	**Break**
3:00 – 4:00 p.m.	**Quality Assurance Project Plans (QAPPs)**.....Kyle Girten, TCEQ *Kyle Girten will present QAPPs from a conceptual standpoint. What needs to be covered; how the data need to be described; references to uncertainty estimation and sensitivity analysis; requirements for gathering existing data.*
4:00 – 4:45 p.m.	**Stakeholder Communications and Modeling**.....Nikki Dictson, TWRI *Provide examples on the process of bringing stakeholders to the table to understand the model, get consensus approval of inputs and presenting modeling results to engage stakeholders in implementation.*
4:45 – 5:00 p.m.	**Wrap Up** .....Nikki Dictson, TWRI

Watershed modeling using LDC and SELECT
May 7-8, 2013

Texas A&M University • Horticulture/Forest Science Bldg. • Lab 125

Agenda

Tuesday, May 7 — ***10 a.m. to 5:30 p.m.***

10–10:30 a.m.	**Introductions & Workshop Overview** [Kevin Wagner, TWRI]
10:30–11:15 a.m.	**Introduction to Load Duration Curves** [R. Karthikeyan & K. Borel, AgriLife Research]
11:15–12 p.m.	**LDC Demonstration** [R. Karthikeyan & K. Borel, AgriLife Research]
12–1:30 p.m.	Lunch (*bring your own or view list of nearby restaurants*)
1:30–2:30 p.m.	**Assignment:** Estimating Pollutant Loads for Attoyac Bayou Using LDCs [Group]
2:30–3:30 p.m.	**Discuss LDC Assignment** [Group]
3:30–3:50 p.m.	Break
3:50–5:30 p.m.	**Introduction to BASINS and SELECT** [R. Karthikeyan & K. Borel, AgriLife Research]

Wednesday, May 8 — **9 a.m. to 4:15 p.m.**

9–9:30 a.m.	**Gathering animal density data for SELECT** [Nikki Dictson, TWRI]
9:30–11 a.m.	**SELECT Demonstration** [R. Karthikeyan & K. Borel, AgriLife Research]
11–11:20 a.m.	Break
11:20–12 p.m.	**Assignment:** Estimating Pollutant Sources for Little Brazos River Using SELECT [Group]
12–1:30 p.m.	Lunch (*bring your own or view list of nearby restaurants*)
1:30–3 p.m.	**Complete SELECT Assignment** [Group]
3–4 p.m.	**Discuss SELECT Assignment** [Group]
4–4:15 p.m.	**Wrap Up** [Nikki Dictson, TWRI]

Stakeholder Facilitation Training

January 24, 2012
Waco, Texas

Conducted by: Joann (Charlie) MacPherson, Tetra Tech, Inc.

9:00 AM	Introductions, course objectives and expectations
9:30 AM	Part 1: Setting Up for Success
10:30 AM	Break
11:00 AM	Part 2: Getting Stakeholders to the Table
12:00 PM	lunch
1:00 PM	Part 3: Facilitation 101
2:15 PM	Break
2:45 PM	Part 4: Keeping the Ball Rolling
4:00 PM	Adjourn

Fundamentals of Developing a Water Quality Monitoring Plan
October 23-24, 2013

USDA ARS Facility
808 East Blackland Road, Temple, Texas 76502

Agenda

Wednesday, October 23 ***9:00 a.m. to 5 p.m.***

9:00 – 9:30 a.m. **Introductions & Workshop Overview** ..... *Larry Hauck, TIAER*
Group introductions and Workshop purpose: Provide participants with the tools to develop and implement a monitoring program for watershed characterization and evaluation of water quality improvements and BMP effectiveness from implementation activities. Brief watershed overview of case studies presented throughout the day.

9:30 – 10:00 a.m. **Data Quality Objectives & Project Planning** ..... *Tina Hendon, TRWD*
Defining the water quality problem, determining monitoring objectives, and establishing data quality objectives at the outset. Long term data needs of the watershed; analytical framework to determine loadings in a watershed protection plan; routine monitoring vs. BMP evaluation (Elements H and I)

10:00 – 10:15 a.m. **Break**

10:15 – 11:45 a.m. **Inventorying and Acquiring Existing Resources** ..... *Patricia Wise, TCEQ*
Review 305(b) process & existing monitoring framework
Inventory existing/historic monitoring sites & data (TCEQ, USGS, others); Acquiring existing data

10:45 – 11:00 a.m. **Case Study**: Introduction

11:00 – 11:45 a.m. **Watershed Characterization & Sufficient Data** ..... *Anne McFarland, TIAER*
Review/select experimental/statistical design – reconnaissance/synoptic, plot, single watershed/before-after, above-and-below watersheds, paired watersheds, multiple watersheds, trend stations
Assess ability of existing data to meet objectives & identify data gaps and data needs
Assessing # of additional sites, samples, and frequency needed

11:45 – 12:00 p.m. **Case Study**: Defining the problem, monitoring objectives, and data quality Inventorying and acquiring existing data, selecting experimental design, and assessing data sufficiency and data gaps.

12:00 – 1:00 p.m. **Lunch** *(catered lunch or bring your own)*

1:00 – 2:15 p.m. **Selecting Monitoring Design** ..... *Larry Hauck, TIAER*
Scale – point, plot, field, watershed
Sample type – grab, composite – time or flow weighted, depth integrated, continuous
Variables monitored (cost & cost cutting considerations)
Sample locations, sampling frequency, and monitoring duration
Station types – discharge measurement, water sample collection – grab vs automated, precip
Collection & Analysis Methods – collection, preservation, transport, analysis, QA/QC
Routine monitoring vs. BMP evaluation; flow and surrogates for flow
National Water Quality Monitoring Handbook

2:15 – 2:45 p.m. **Introduction to Stormwater Sampling** ..... *Daren Harmel, USDA-ARS*
Understanding the why's and how's of stormwater sampling.

2:45 – 3:00 p.m. **Break**

3:00 – 3:30 p.m. **Other Considerations & Review Building a Successful Monitoring Plan** ..... *Larry Hauck, TIAER*
Monitoring plan development to meet data quality objectives and Support Modeling; equipment; budgets; personnel constraints and available resources; and the importance of project planning.

3:30 – 4:00 p.m. **Case Study**: Selecting Monitoring Design

4:00 – 5:00 p.m. **Workshop: Create a Monitoring Plan**.....*Group*
Divide into six groups and outline and develop a monitoring plan using National WQ Handbook worksheet. [watershed assessment; effectiveness monitoring (watershed scale; BMPs)]
**EPA QA Training*

Thursday, October 24 ***8:30 a.m. to 3:30 p.m.***

8:30 – 9:30 a.m. **Workshop Follow Up: Present/Discuss Monitoring Plan**.....*Group*
Each group presents monitoring plan (10 minutes per group).

9:30 – 10:00 a.m. **Quality Assurance Project Plans**.....*Kevin Wagner, TWRI*
Integrating monitoring design into QAPPs & QAPP development tips; session will also review different QAPP types and templates.

10:00 – 10:15 a.m. **Break & Travel to Monitoring Site**

10:15 – 12:00 p.m. **Monitoring Demonstrations**.....*Brazos River Authority/Tidwell/Harmel*
- *TBD (BRA) - routine monitoring*
- *Daren Harmel (USDA-ARS) & Russell Park - stormwater monitoring (ISCO)*
- *Travis Tidwell (Texas Stream Team) - volunteer monitoring*

**30 minutes per station*

12:00 – 1:00 p.m. **Travel to Workshop Location & Lunch** *(catered lunch or bring your own)*

1:00 – 2:00 p.m. **Statistical Tools For Analysis**.....*Anne McFarland, TIAER*
Review and demonstrate common statistical analysis for water quality data analysis. Discuss role of statistics in final reporting of data, how they are tied back to overall monitoring objectives, and use for evaluating BMP effectiveness and quantifying load reductions.

2:00 –2:30 p.m. **Uncertainty in Monitoring**..... *Daren Harmel, USDA-ARS*

2:30 – 3:00 p.m. **Stakeholder Communications**.....*Larry Hauck, TIAER*
Determining BMPs; incorporating analysis of sampling uncertainty and translating both to stakeholders; getting information up front.
*include list of contacts for regional offices; RRC, etc. (who to contact for complaints)

3:00 – 3:30 p.m. **Wrap Up**.....*Larry Hauck, TIAER*
Discuss how monitoring folds into watershed based plans and ties back to watershed-based planning efforts.

Appendix I: News Releases for Trainings

today.agrilife.org http://today.agrilife.org/2013/10/21/watershed-short-course-bandera-2/

Watershed planning short course Nov. 4-8 in Bandera

View all articles by Paul Schattenberg › October 21, 2013

BANDERA – The Texas Water Resources Institute will present a Texas Watershed Planning Short Course Nov. 4-8 in Bandera.

The five-day course will be held at the Mayan Dude Ranch, 350 Mayan Ranch Road, about 47 miles northwest of San Antonio.

The institute is part of Texas A&M AgriLife Research, Texas A&M AgriLife Extension Service and the College of Agriculture and Life Sciences at Texas A&M University.

The Texas Water Resources Institute will present the Texas Watershed Planning Short Course from Nov. 4-8 at the Mayan Dude Ranch in Bandera. (Texas A&M AgriLife Extension Service photo)

"Watershed protection plans and the stakeholder-driven watershed planning process instilled through the course have become the foundation for water quality improvement efforts in Texas," said Kevin Wagner, associate director at the institute and course leader.

Wagner said this course is one of the few in the country that builds upon the nine essential elements for watershed planning identified by the U.S. Environmental Protection Agency.

"Practitioners developing both watershed protection plans and total maximum daily load, or TMDL, implementation plans have participated in the course and are now using the techniques they learned during the course to address water quality issues statewide," he said.

In addition to EPA's nine elements, the course provides watershed coordinators and water resource professionals with guidance on stakeholder coordination, education and outreach; data collection and analysis; and the tools available for plan development.

"This information is presented through lectures and case studies," said Nikki Dictson, AgriLife Extension program specialist for the institute, College Station.

Wagner added that approximately 30 watershed planning efforts and almost a dozen more total maximum daily load implementation plans have benefited from the training. The plans have been financed by the Texas State Soil and Water Conservation Board and Texas Commission on Environmental Quality, the two state agencies responsible for Texas water quality.

Course registration is $375 and will remain open until Oct. 25.

Additionally, a block of rooms at the Mayan Dude Ranch has been reserved at a special rate of $121 per night, which includes lodging plus all meals, but reservations must be made by Oct. 25 to receive this special rate. Participants are asked to identify themselves as short course attendees when making reservations.

The upcoming short course is the seventh such program to be held. The course is funded by the Texas Commission on Environmental Quality and the EPA.

For more information on the course, registration and lodging arrangements, go to http://watershedplanning.tamu.edu/ or contact Dictson at n-dictson@tamu.edu.

Texas Water Resources Institute to present watershed roundtable July 30 in Dallas

View all articles by Paul Schattenberg ›

July 17, 2013

DALLAS — The Texas Water Resources Institute will present a Texas watershed coordinator roundtable July 30 in Dallas.

The institute is part of Texas A&M AgriLife Research, Texas A&M AgriLife Extension Service and the College of Agriculture and Life Sciences at Texas A&M University.

There is no charge for admission to the program, which will be from 9:30 a.m. to 3:30 p.m. at the Texas A&M AgriLife Research and Extension Center, 17360 Coit Road.

The roundtable July 30 in Dallas will include a tour and demonstration of low-impact design related to water use and conservation. (Texas A&M AgriLife Research photo by Robert Burns)

The roundtable will focus on urban best-management practices for water resource conservation and low-impact development for watershed coordinators and other water resource professionals, program presenters said.

"These roundtables, held biannually, provide a forum for watershed coordinators where they can develop interactive solutions to common watershed issues faced throughout the state and receive program updates on a variety of issues," said Nikki Dictson, AgriLife Extension program specialist for the institute.

Dr. Fouad Jaber, AgriLife Extension specialist in integrated water resources at the Dallas center, will present information on low-impact development design, construction and performance and give a tour of low-impact development practices demonstrated at the center.

Philip Crocker and Suzanna Perea of the U.S. Environmental Protection Agency will update attendees on the topics of nonpoint source pollution program and stormwater rulemaking, respectively.

A catered lunch is available for $10, and there is a vegetarian option. RSVP is required and participants may register and get more information at http://watershedplanning.tamu.edu/training/

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Institute to present water programs Jan. 22-23 in Temple

TEMPLE – On Jan. 22 and 23, the Texas Water Resources Institute will hold two events designed for water professionals at the Texas A&M AgriLife Research and Extension Center, 720 E. Blackland Road in Temple.

The institute is part of Texas A&M AgriLife Research, the Texas A&M AgriLife Extension Service and the College of Agriculture and Life Sciences at Texas A&M University.

According to Nikki Dictson, AgriLife Extension program specialist for the institute, the programs have been developed for watershed coordinators and other water resource professionals.

Two programs designed for water professionals will be held Jan. 22-23 at the Texas A&M AgriLife Research and Extension Center in Temple. (Texas A&M AgriLife Extension Service photo)

The Jan. 22 event is a no-cost Texas Watershed Coordinator Roundtable meeting taking place from 9:30 a.m. to 3:30 p.m.

"These roundtables, held biannually, provide a forum for watershed coordinators where they can develop interactive solutions to common watershed issues faced throughout the state," Dictson said.

Roundtable presenters include speakers from the institute, U.S. Environmental Protection Agency and Texas Commission on Environmental Quality. Additionally, Amy Hays, Texas A&M Institute of Renewable Natural Resources, will present on the role of social media in conservation science, followed by a viewing of the film, "Watershed: Exploring a New Water Ethic for the New West."

A catered lunch is available for $10 and vegetarian options will be available. RSVP is required, and participants may register at http://watershedplanning.tamu.edu/training/

The Jan. 23 event, "An Introduction to Modeling Training," will be held at the center from 9 a.m. to 5 p.m. The cost is $75.

"This training will provide an introduction on the variety of watershed models that can be used in watershed planning efforts, considerations when selecting models and procedures for implementing modeling in your watershed," said Dr. Kevin Wagner, associate director of the institute.

Dr. R. Srinivasan, director of the Texas A&M University Spatial Sciences Laboratory, will talk on the purpose, limitations and different requirements of watershed models currently available.

Other sessions include speakers from the Texas Commission on Environmental Quality and Texas Institute for Applied Environmental Research.

"The course will conclude with a presentation on stakeholder communications and modeling," Dictson said. "Bringing stakeholders to the table to understand the model, facilitating consensus, and approval of inputs and presenting modeling results to engage stakeholders in implementation is very important."

Registration includes course materials, a catered lunch and a certificate of completion. One Texas Water Resources Institute continuing education unit will be provided upon course completion.

Participants may register for this training at http://watershedplanning.tamu.edu/training/as well, and more information on both programs is available at the website.

today.agrilife.org http://today.agrilife.org/2013/10/07/water-quality-plan-development/

Water quality monitoring for plan development focus of Oct. 23-24 program in Temple

View all articles by Paul Schattenberg →

October 7, 2013

TEMPLE — The Texas Water Resources Institute is hosting "Fundamentals of Developing a Water Quality Monitoring Plan" training Oct. 23-24 at the U.S. Department of Agriculture's Agricultural Research Service Grassland Soil and Water Research Laboratory, 808 East Blackland Road, Temple.

The institute is part of Texas A&M AgriLife Research, Texas A&M AgriLife Extension Service and the College of Agriculture and Life Sciences at Texas A&M University.

The "Fundamentals of Developing a Water Quality Monitoring Plan" program Oct. 23-24 in Temple will focus on water quality monitoring as a means to help determine and implement an effective watershed protection plan. (Texas Water Resources Institute photo)

The workshop will be held from 9 a.m.-5 p.m. Oct. 23 and from 8:30 a.m.-3:30 p.m. Oct. 24 at the ARS Meeting Room.

Cost is $150 and includes course materials, catered lunches and a certificate of completion.

According to Nikki Dictson, AgriLife Extension program specialist for the institute, the workshop will provide watershed coordinators and water professionals with the tools to develop and implement a water quality monitoring program.

She said the course will cover monitoring water quality for watershed quality improvements and effective implementation and management.

"Participants will gain an understanding of what monitoring is needed for watershed protection planning, including inventorying existing resources, watershed characterization, selecting a monitoring design, storm water sampling and considerations to build a successful monitoring plan through presentations and case studies," Dictson said. "Participants will get some hands-on experience with creating a monitoring plan and through monitoring demonstrations in the field."

Course instructors will include: Dr. Larry Hauck, lead researcher, and Anne McFarland, research scientist, both from Tarleton State University's Texas Institute of Applied Environmental Research; Dr. Kevin Wagner, associate director, Texas Water Resources Institute, College Station; and Dr. Daren Harmel, research leader and agricultural engineer, USDA-ARS Grassland, Soil, and Water Research Laboratory, Temple.

One Texas Water Resources Institute continuing education unit will be provided upon course completion.

Participants may register for this training at http://watershedplanning.tamu.edu/training/.

More information is available at the website or by contacting Dictson at 979-458-5915 or n-dictson@tamu.edu.

This training is supported by funding from the Texas Commission on Environmental Quality through a U.S. Environmental Protection agency nonpoint source grant.

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today.agrilife.org http://today.agrilife.org/2013/04/01/watershed-workshop-may-7-8-cs/

Watershed modeling workshop set for May 7-8 in College Station

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Program will focus on load duration curves and land-use analysis tool

COLLEGE STATION — The Texas Water Resources Institute and Texas A&M University department of biological and agricultural engineering will present a watershed modeling workshop May 7-8 at the Horticulture/Forest Science Building on the Texas A&M campus in College Station.

The institute is part of Texas A&M AgriLife Research, the Texas A&M AgriLife Extension Service and the College of Agriculture and Life Sciences – all part of the Texas A&M University System.

The workshop will include hands-on instruction regarding load duration curves and the Spatially Explicit Load Enrichment Calculation Tool, or SELECT, said coordinators. Sessions will be in Lab 125 of the building, from 10 a.m.–5:30 p.m. on May 7 and from 9 a.m.–4:15 p.m. on May 8.

The May 7-8 training at the Horticulture/Forest Science Building on the Texas A&M University campus will be focused on load duration curves and use of the Spatially Explicit Load Enrichment Calculation Tool, or SELECT. (Texas A&M AgriLife Extension Service photo)

Load duration curves give a graphical representation of stream flow and pollutant loading so real data can be compared to a stream's maximum allowable load, noted institute professionals. SELECT provides a spatially explicit analysis of land use, land cover, animals, humans and other variables in watersheds to help assess actual and potential sources of bacteria.

"This two-day class is for individuals developing watershed protection plans and total maximum daily loads to estimate pollution sources and loads to rivers," said Dr. Kevin Wagner, associate director of the Texas Water Resources Institute.

During the workshop, associate professor Dr. R. Karthikeyan and research associate Kyna Borel, both of the biological and agricultural engineering department at Texas A&M, will provide lectures on the use of load duration curves to assess pollutant loads. They also will instruct on the use of SELECT to target priority areas for implementing pollutant remediation measures.

"Participants will also gain hands-on experience in the use of these tools," Wagner said. "The course will include discussions on gathering data to populate these models and how modeling is critically linked with watershed-based planning efforts."

Registration is $100 and includes refreshments, course materials and a certificate of completion.

One Texas Water Resources Institute continuing education unit will be provided upon course completion.

For more information about watershed modeling, go to http://select.tamu.edu/.

For more information or to register for the workshop, go to http://watershedplanning.tamu.edu/training/.

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Texas Agriculture Daily News

Texas watershed modeling workshop in College Station, Nov. 6-7

Monday, October 29, 2012

The Texas Water Resources Institute and Texas AgriLife Research will co-host a Watershed Modeling Workshop Nov. 6-7 on the Texas A&M University campus in College Station.

The workshop will be held from 10 a.m.-5 p.m. on Nov. 6 and from 9 a.m.-4:15 p.m. Nov. 7 in the Horticulture/Forest Science Building, Lab 125. Participants will assess pollutant loads and use tools to target priority areas for increasing pollutant remediation.

"This two-day class is for individuals developing watershed protection plans and total maximum daily loads," said Dr. Kevin Wagner, associate director of the Texas Water Resources Institute.

Registration is $100 and is due by Nov. 2. For more information and to register, visit http://watershedplanning.tamu.edu/training/.

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AgriLife TODAY

Watershed Modeling Workshop slated for Nov. 6-7 in College Station

October 26, 2012

Contacts

Contacts: Kevin Wagner, 979-845-2649, klwagner@ag.tamu.edu; Nikki Dictson, 979- 458-5915, nikki.dictson@agnet.tamu.edu,

COLLEGE STATION–The Texas Water Resources Institute and Texas A&M AgriLife Research's department of biological and agricultural engineering are sponsoring a two-day Watershed Modeling Workshop Nov. 6-7 in College Station.

The workshop will be held on the Texas A&M University campus in the Horticulture/Forest Science Building, Lab 125. Sessions will be from 10 a.m.-5 p.m. Nov. 6 and 9 a.m.-4:15 p.m. Nov. 7.

(http://agrilifecdn3.tamu.edu/wp-content/uploads/2012/10/Bayou1.png)

A Watershed Modeling Workshop will be held Nov. 6-7 on the Texas A&M campus in College Station. (Texas A&M AgriLife Extension Service photo)

"This two-day class is for individuals developing watershed protection plans and total maximum daily loads," said Dr. Kevin Wagner, associate director of the Texas Water Resources Institute.

Wagner said the institute and Texas A&M Institute of Renewable Natural Resources (http://irnr.tamu.edu/) work together to foster and communicate research and educational outreach programs focused on water and natural resources science and management issues in Texas and beyond.

During the workshop, associate professor Dr. R. Karthikeyan and research associate Kyna Borel, biological and agricultural engineering department at Texas A&M, will provide lectures on the use of load duration curves to assess pollutant loads. They will also address the use of the Spatially

Explicit Load Enrichment Calculation Tool, or SELECT, to target priority areas for implementing pollutant remediation measures, he said.

“Participants will also gain hands-on experience in the use of these tools,” Wagner said.

Load duration curves provide a graphical representation of stream flow and pollutant loading so real data can be compared to a stream’s maximum allowable load. SELECT provides a spatially explicit analysis of land use, land cover, animals, humans and other variables in watersheds to help assess actual and potential sources of bacteria.

“The course will include discussion on gathering data to populate these models and how modeling is critically linked with watershed-based planning efforts,” Wagner said.

One Texas Water Resources Institute continuing education unit will be provided upon course completion.

Registration cost is $100 and the deadline for registration is Nov. 2.

For more information about watershed modeling, go to http://select.tamu.edu/ (http://select.tamu.edu/) . For more information or to register for the workshop, go to http://watershedplanning.tamu.edu/training/ (http://watershedplanning.tamu.edu/training/) .

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Topics:

Agency: Texas AgriLife Extension Service, Texas AgriLife Research

AgriLife TODAY

Watershed planning short course to be held Sept. 24-28 in Bandera

June 27, 2012

Contacts

Contact: Kevin Wagner, klwagner@ag.tamu.edu Courtney Smith, courtneysmith@ag.tamu.edu.

BANDERA – The Texas Water Resources Institute will present a five-day Texas Watershed Planning Short Course Sept. 24-28 in Bandera regarding how to develop a locally led watershed protection plan according to EPA guidelines .

The institute is part of Texas AgriLife Research, Texas AgriLife Extension Service and the College of Agriculture and Life Sciences at Texas A&M University.

The short course will be held at the Mayan Dude Ranch, 350 Mayan Ranch Rd., about 47 miles northwest of San Antonio.

(http://agrilifecdn3.tamu.edu/wp-content/uploads/2012/06/WatershedPic.jpg)

A five-day watershed planning short course for water coordinators and water resource professionals will be held Sept. 24-28 at the Mayan Dude Ranch in Bandera. (Texas AgriLife

"Voluntary, locally led watershed protection plans are one of the primary methods being used to restore Texas surface waters," said Kevin Wagner, an associate director at the institute and course leader.

Wagner said this is one of the few courses in the country that builds upon the nine essential elements for watershed planning as identified by the U.S. Environmental Protection Agency.

"People attending this course will come out better prepared to develop watershed protection plans according to EPA guidelines," he noted.

Extension Service photo)

In addition to EPA's nine elements, the course provides watershed coordinators and water resource professionals with guidance on stakeholder coordination, education and outreach; data collection and analysis; and tools for plan development.

Information is presented through lectures and case studies, Wagner said.

He added that the Texas State Soil and Water Conservation Board and the Texas Commission on Environmental Quality, the two state agencies responsible for Texas' water quality, are financing the creation of more than a dozen watershed protection plans statewide.

"Upon completion, participants will receive continuing education units from the National Registry of Environmental Professionals," he said.

Course registration is $350 by Aug. 10 and then $375 until Sept. 18.

A block of rooms at the Mayan Dude Ranch has been reserved at a special rate of $121 per night, which includes all meals and lodging, but reservations must be made by Sept. 18 to receive this special rate. Participants are asked to identify themselves as short course attendees when making reservations.

The short course is the sixth such program to be held in Bandera. It is funded by the Texas Commission on Environmental Quality and the U.S. Environmental Protection Agency.

For more information on the course, registration and lodging, go to http://watershedplanning.tamu.edu/ (http://watershedplanning.tamu.edu/) or contact Wagner at klwagner@ag.tamu.edu (mailto:klwagner@ag.tamu.edu) or Courtney Smith at courtneysmith@ag.tamu.edu (mailto:courtneysmith@ag.tamu.edu) .

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agrilife.org http://agrilife.org/today/2011/12/20/twri-programs-waco/

Texas Water Resources Institute to host two January watershed protection, restoration programs in Waco

December 20, 2011 By: Paul Schattenberg

AgriLife TODAY
Sharing Stories of Everyday Solutions

WACO — The Texas Water Resources Institute is hosting two programs spotlighting watershed restoration and protection Jan. 24-25 in Waco.

The institute is part of Texas AgriLife Research, Texas AgriLife Extension Service and the College of Agriculture and Life Sciences at Texas A&M University.

According to planners, the programs are designed for watershed stakeholders, including watershed coordinators and water resource professionals.

The first will be the Stakeholder Facilitation Training Program from 9 a.m.-4 p.m. Jan. 24 at the Texas Farm Bureau Conference & Training Center, 7410 Fish Pond Rd. Training will be presented by Charlie MacPherson of Tetra Tech, an environmental engineering and consulting firm. She will discuss tools used to effectively identify, engage and involve watershed stakeholders to restore and maintain healthy environmental conditions.

Two watershed protection and restoration programs will be held Jan 24-25 in Waco. (Texas Water Resources Institute photo)

"Stakeholder engagement is more than just holding a public hearing or seeking public comment on a new regulation," MacPherson said. "Effective stakeholder engagement provides a method for identifying public concerns and values, developing consensus among affected parties, and producing efficient and effective solutions through an open, inclusive process."

"Effective stakeholder engagement is essential to address watershed issues," said Kevin Wagner, an associate director of the Texas Water Resources Institute in College Station. "Solving the water quality problems we face today requires commitment and participation of stakeholders throughout the watershed."

The second program, the Texas Watershed Coordinator Roundtable, will be from 9:30 a.m.-3:30 p.m. Jan. 25 at the Texas Farm Bureau center.

"These round-table discussions are held biannually and provide a forum for watershed coordinators where they can develop interactive solutions to common watershed issues faced throughout the state and add to the fundamental knowledge conveyed at other courses," said Courtney Smith, the institute's training program coordinator.

Smith said round-table topics include discussion of statewide land-use trends and their

impacts on water quality and quantity, and using watershed report cards to inform stakeholders on watershed protection plan progress.

Registration for the Jan. 24 training is $30. A catered lunch will be offered at the Jan. 25 Texas Watershed Coordinator Roundtable for $10, payable in cash only.

The training course and round table are supported by funding from the Texas Commission on Environmental Quality through a U.S. Environmental Protection agency nonpoint source grant.

For more information and to register, go to http://watershedplanning.tamu.edu or contact Smith at 979-845-1851 or courtneysmith@tamu.edu.

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Central Environment Regional Water

Watershed planning short course to be held Nov. 14-18 in Bandera

BANDERA – The Texas Water Resources Institute will be presenting a five-day Texas Watershed Planning Short Course Nov. 14-18 in Bandera.

The course will be held at the Mayan Dude Ranch, 350 Mayan Ranch Rd., about 47 miles northwest of San Antonio.

The institute is part of Texas AgriLife Research, Texas AgriLife Extension Service and the College of Agriculture and Life Sciences at Texas A&M University.

"Well-considered, holistic watershed protection plans involving as many stakeholders as possible in their development are becoming the widely accepted approach to protecting Texas surface waters," said Kevin Wagner, an associate director at the institute and course leader.

Wagner said this is one of the few courses in the country that builds upon the nine essential elements for watershed planning as identified by the U.S. Environmental Protection Agency

"People attending this course will come out better prepared to develop watershed protection plans according to EPA guidelines," he noted.

Registration is open for a five-day watershed planning course to be presented by the Texas Water Resources Institute and held from Nov. 14-18 at the Mayan Dude Ranch in Bandera, about 47 miles northwest of San Antonio. (Texas AgriLife Extension Service photo)

In addition to EPA's nine elements, the course provides watershed coordinators and water resource professionals with guidance on stakeholder coordination, education and outreach; data collection and analysis; and the tools available for plan development. This information is presented through lectures and case studies, Wagner said.

Wagner added that the Texas State Soil and Water Conservation Board and the Texas Commission on Environmental Quality, the two state agencies responsible for Texas' water quality, are financing the creation of more than a dozen watershed protection plans statewide.

Upon completion, participants will receive continuing education units from the National Registry of Environmental Professionals.

Course registration is $350 if postmarked by Oct. 17 and $375 until Nov. 10.

A block of rooms at the Mayan Dude Ranch has been reserved at a special rate of $121 per night, which includes all meals and lodging, but reservations must be made by Nov. 10 to receive this special rate. Participants are asked to identify themselves as short course attendees when making reservations.

The upcoming short course is the fifth such program to be held in Bandera. The course is funded by the Texas Commission on Environmental Quality and the U.S. Environmental Protection Agency.
For more information on the course, registration and lodging, go to http://watershedplanning.tamu.edu/ or contact Wagner at klwagner@ag.tamu.edu or Courtney Smith at courtneysmith@ag.tamu.edu.

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Environment Water

Texas Water Resources Institute enhances watershed planning website

http://agrilife.org/today/2011/03/22/twri-enhances-website/ April 5, 2011

AgriLife TODAY
Sharing Stories of Everyday Solutions

The Texas Water Resources Institute recently revamped its Texas Watershed Planning website to better assist water professionals in developing watershed protection plans. (Texas AgriLife Extension Service photo)

COLLEGE STATION — The Texas Water Resources Institute recently revamped its Texas Watershed Planning website to better assist water professionals in developing watershed protection plans, according to an institute official.

"The site is particularly useful for those who are interested in helping restore a nearby watershed but are unsure where to begin," said Kevin Wagner, the institute's associate director. "Watershed protection plans that outline ways to preserve or restore watersheds are a voluntary and accepted approach to protecting Texas surface waters. And this site provides useful information related to such plans."

Wagner said the enhanced website at http://watershedplanning.tamu.edu/ includes steps for developing watershed protection plans and explains the benefits of these plans and ways to finance them.

"The website also posts upcoming training events for watershed coordinators and other resources," he added.

The Texas Water Resources Institute is part of Texas AgriLife Research, the Texas AgriLife Extension Service and the College of Agriculture and Life Sciences at Texas A&M University.

"We revamped the website to make it more of a resource to watershed coordinators and groups in Texas," Wagner said. "We wanted to provide easy links to available resources."

He said one of the greatest challenges faced by all watershed groups is funding and that the institute has worked with the Environmental Finance Center at Boise State University to update the Directory of Watershed Resources to include Texas-specific funding programs. The directory is an online database for watershed restoration funding, and includes information on federal, state, private, and other funding sources and assistance.

"This easy-to-use database links watershed groups with sources of funding for a variety of watershed activities from implementation of best management practices to conducting education and outreach programs," Wagner said.

Wagner said the original website was created through a coordinated effort led by the institute and funded by the U.S. Environmental Protection Agency through the Texas Commission on Environmental Quality as a means to inform those interested in Texas watershed planning short courses, and information on these courses may still be found on the enhanced website.

"These short courses provide training to watershed professionals on approaches to managing

water quality throughout the state and guidance on stakeholder coordination, education and outreach," Wagner said. "Some of the training components include the EPA's nine key elements of a watershed protection plan, data collection and analysis, and the tools available for plan development."

Another resource available on the revamped website is information about the Texas Watershed Coordinator Roundtables, he said.

"These roundtables, held biannually, provide a forum for watershed coordinators, facilitate interactive solutions to common watershed issues faced throughout the state and add to the fundamental knowledge conveyed at the short courses," said Courtney Smith, the institute's program coordinator.

The water institute also has developed a listserv for watershed coordinators to receive information about the roundtables, training events and other useful information, he said. Interested coordinators may subscribe at http://watershedplanning.tamu.edu/developing/guidance/subscribe.

The Texas Commission on Environmental Quality continues to fund this project.

"Support for this project and the many benefits it offers to watershed professionals continues to grow," said Kerry Niemann, team leader of the Nonpoint Source Pollution Program at TCEQ. "We believe that our continued efforts to build watershed-management capacity through this project and others is second to none. We are very proud of this result and are committed to making Texas number one in this regard."

For more information, contact Courtney Smith, program coordinator, at 979-862-2299 or courtneysmith@ag.tamu.edu

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Environment Water